

# INSTRUCTION MANUAL WARGAME CONSTRUCTION KIT

EmuMovie



Wizardworks. All Rights Reserved  
Copyright 1986, 1987, 1990 Strategic Simulations, Inc. All Rights Reserved

## GETTING STARTED: Answers to special game questions.

You must answer one of the following questions to run Wargame Construction Set:

1. How many units does the friendly side have? Answer = 1. Nine
2. Who designed the Castle Siege scenario? Answer = 1. Mr. Calfee
3. Truck, helicopter and boat units can be had by? Answer = 1. Friendly Units
4. In the two player sequence, which is the friendly fire phase? Answer = 2. Three

TERRAIN EFFECTS TABLE

TERAIN TYPE	IN	IN/TB	EN	MW/GH	HL	IF	AU/P
Clear	2	2	2	2	1	P	2
Roads	1	1	1	1	1	P	1
Bridge	3	3	3	3	1	1	3
Blown bridge	3	P	+	3	1	1	P
Trees	3	3	3	3	1	P	3
Crests	3	3	3	3	1	P	3
Hilltop	6	6	6	6	1	P	6
Woods	6	6	6	6	1	P	6
Mines	*	7	7	7	1	P	3
Buildings	8	8	8	8	1	P	8
River	8	P	8	8	1	1	8
Border	P	P	P	P	P	P	P

KEY:

\* = Cost in movement points

P = Prohibited

+ = All remaining movement points

1 = TN and TR prohibited in woods centers

## HOTLINE

If you have any questions or problems regarding the program or game, please send a stamped, self-addressed envelope with your question to:  
Wizardware Group, Inc.  
5700 W. Broadway, #300-A  
Minneapolis, MN 55428-3590

or call: 612-537-4085

## ADDITIONAL NOTE TO OWNERS OF WARGAME CONSTRUCTION SET PC/MS-DOS VERSION

Scenarios which you construct yourself or saved games must be saved to a scenario disk. In order to make a scenario disk, make another copy of your game disk. This copy will be your scenario disk. Insert this scenario disk into your drive and type MAKEOISK. When you get your prompt back, you will then have a disk which you can use for saving new scenarios or saved games. A scenario disk will hold up to 7 scenarios. This disk will also have all game files on it, and can be used by itself.

During the play of the game, you can save or load from a game or scenario disk other than the one you are playing on. In the Editor, after pressing 1 for disk access, you will be given an option to "Load" or "Save." Before pressing L or S, insert the other disk. During the play of the game, when you get to the Save Game question, insert the other disk before saying yes. Be careful: If you select a save game position other than "new file," you will overwrite all data saved in that position.

## 1. DISK ACCESS

This option allows you to save or restore scenarios. When played from a hard disk, Wargame Construction Set will store scenarios in the subdirectory ISCENARIO.

## 2. DRAW MAP

The following function keys are defined:

- F1 - select terrain icon
- F2 - place terrain icon on map
- F3 - select terrain icon from current map position
- F9 - clear terrain from map
- F10 - wood edging utility

To select an icon using the keyboard, press F1 then use the arrow keys to position the box over the icon desired. Press F1 to go back to the Map Scrolling mode.

## 3. EDIT MAP COLORS

You cannot change the colors on CGA systems. On EGA systems, use the cursor keys to select the color you wish to change. To change that color, press the R, G, B, or I keys. CANCEL resets the active color to the color existing when the edit colors routine was last entered. NORMAL resets the whole palette to the colors existing when the routine was last entered.

## 4. & 5. EDIT UNITS

Select the statistic you wish to change using the cursor keys. Press the + key to increase the chosen value, or the - key to decrease it. F1 and F2 will increase and decrease respectively, the value by 10. To duplicate a unit, select DUPLICATE and type the number of the unit you wish to copy. CANCEL removes all changes made to a unit's statistics. F3 allows a name for a unit to be entered or changed. A name can be up to 10 characters long. NEXT allows you to proceed to the unit with the next higher number. PREVIOUS takes you back to the unit with the next lower number.

## 6. DEPLOY UNITS

The unit deployment is similar to draw map (#2 above). F10 clears all units on the map.

## 7. & 8. PRINT MAP AND CHOOSE SCALE

No changes have been made.

## 9. & 10. ARTILLERY AND SOUND

These options allow you to turn the Artillery and Sound options on and off.

### General Note

Due to the complexity of this simulation, there may be short periods of time when no visible activity is taking place. This may be particularly noticeable on slower machines. This delay is normal.

## WARGAME CONSTRUCTION SET™ IBM & Compatibles Version

### Copying Your Disk

Before beginning to play, make a copy of your disk using the DOS DISKCOPY command. Set aside the original and play on the copy.

To install Wargame Construction Set on a hard disk you only need to type COPYHARD when your game disk is in Drive A.

### Booting Wargame Construction Set

At the system prompt, type WCS. Wargame Construction Set will then ask you to identify what type of video adapter your system is using.

### Giving Commands

Wargame Construction Set is played using the keyboard. To activate a command, press the first letter of the command or the key listed on the screen.

Movement is controlled by the keyboard. Arrow keys will move the cursor a single square. Shifting the arrow will move the cursor half a screen. For Tandy systems, place the keypad in "NUMLOCK" mode. Use the regular arrow keys for single square movement, and the keypad keys for shifted movement.

### Game Differences

1. ZOOM will change the size of the map displayed.
2. PHASE will cause the game to go to the next phase.
3. To fire during a fire phase, use the cursor keys to position the cursor over a friendly unit. Select that unit and its information will appear on the screen. Move the cursor to wherever the unit wishes to fire and press F.
4. To move a unit during a movement phase, move the cursor over the unit and select it. Use the cursor keys to move the unit. To drop a unit, choose DEPLOY. A unit automatically stops moving when it has no more movement points.
5. To load a unit, simply move a unit onto another unit which can carry it. To unload a unit, SELECT the carrier and then press U for unload. Then enter a direction for the unloaded unit to move.
6. In the two-player game, opportunity fire is automatic and not controlled by the players.

### Editor Differences

There are now ten options for the Editor. How they differ from the rulebook is explained on the reverse of this card.

## TABLE OF CONTENTS

<b>I. THE GAME</b>	1
A. Loading	1
E. Scenario Selection	1
C. Game Control	1
D. Save Game	1
<b>II. ONE-PLAYER GAME</b>	1
A. Introduction	1
B. the Main Screen	1
C. Phases of Play	2
Observation Phase • Fire Phase • Movement Phase	
Enemy Fire Phase • Enemy Movement Phase • Victory Phase	
<b>III. TWO-PLAYER GAME</b>	3
A. Observation Phase	3
B. Digging in	3
C. Sequence of Play	4
D. Player Turns	4
E. Fire Capabilities	4
F. Artillery	4
G. Pins and Suppression	4
H. Opportunity Fire	4
I. Hit Effects	4
<b>IV. EDITOR</b>	4
A. Loading	4
B. the Main Menu	5
C. Main Menu Options	5
Disk Access • Draw Map • Edit Map Colors	
Edit Friendly Units • Edit Enemy Units • Deploy Units	
Print Map • Choose Scale • Artillery Option	
<b>V. TUTORIAL</b>	9
A. Introduction	9
B. Planning the Game	10
Genre • Theme and Plot • Map Scale • Map Size	
Sketch Map • Number and Scale of Units • Unit Design	
C. Character (Unit)	12
the Adventures • Attila and his Guardians	
Aggression Settings • Units	
D. At the Computer	13
Preliminaries • Creating the Map • Editing Friendly Units	
Edit Enemy Units • Deploying Units on the Map	
<b>VI. SCENARIOS</b>	20
Side 1	20
Rommel's 88's (WWI) • To Cross a River	
Abuse on the Meuse • Return to Beta 4	
Side 2	21
Delta Force Rescue • Fulda Gap • Rmt Bull Run	
Castle Siege	
<b>VII. DESIGN GUIDELINES, HINTS &amp; COMMENTS</b>	23
In General	23
the Units	23
Repower/Defense • Assault • Movement	
Strength • Range • Transport	
Putting it All Together	25
Map and Scale	26
Methods in Madness	26

With your WARGAME CONSTRUCTION SET, you can develop a model of a military situation and then use it in game play. As you construct a scenario, you are limited only by your own imagination and the nature of the game. You can explore a wide range of conflict situations in military history, fantasy, and science fiction.

WARGAME CONSTRUCTION SET consists of two parts: the EDITOR and the GAME. The EDITOR is used to design the scenario or to alter a previously created one. The GAME is used to play the scenario.

In creating a scenario for the game, you have full control over the battle terrain and the combatants. There are 31 units available to your side and 31 units available to the enemy forces which can be controlled by another player or by the computer. Our goal is to give you maximum flexibility and discretion in representing situations.

You may begin with either the GAME or the EDITOR. If you are eager to design a scenario but uncertain about how it is done, turn first to Section V (TUTORIAL). Learn how to use the EDITOR by following the instructions in planning and developing a fantasy simulation. If you want more detailed explanations of the elements, see Section IV (EDITOR).

If you prefer, instead, to begin by playing a game, you can use one of the scenarios included. Beginners and newcomers to this type of game should start with the "Return to Beta 4" scenario. It is an introductory situation with the force size limited and the objective clear. If you are ready for a greater challenge, use "Rommel's 88's". Again, the force size is limited, but this time the problem is more complex.

After you become familiar with the GAME and the EDITOR, you can modify an existing scenario or create a new one. Make sure you have a formatted DOS2.05 disk or a copy of the Scenario Disk ready. Load the scenario you want to inspect from the Scenario Disk, when you have completed editing it, save it onto the blank disk.

When you use the EDITOR, keep in mind the fact that there is no variable that can crash the system; the worst that can happen is that your design will have unanticipated consequences. Let your imagination be free to create situations as yet unseen by other players. Take control and do what I have been doing ... and do it better.

## I. THE GAME

The GAME allows you to enact the battle set up with the EDITOR. There are eight battles

included with each version of the game (5 one-player, 3 two-player) to let you experience some of the available situations. Theoretically, any period in military history can be represented in some manner, but some military situations cannot be represented as effectively as others.

### A. Loading

After insert the disk, GAME side face up, turn the computer on, the game loads and runs automatically. If you have an XL or XE computer, you do not have to hold down the OPTION key when turning on the computer.

To play against the computer, press the START key for the one-player game.

To play against another person, press the OPTION key for the two-player game.

### B. Scenario Selection

After the game is loaded, the computer prompts you again, insert the scenario disk provided or the scenario disk you have created, then press <START>.

Press <SELECT> to take you through the list of scenario titles.

Press <START> to load the scenario you choose to play.

Press <OPTION> to return to the beginning, this allows you to flip over the disk to see scenarios on the other side.

### C. Game Control

Your main controls are the joysticks and the three console keys: <START>, <SELECT>, and <OPTION>. Control the cursor with the proper joystick; use the fire button to control individual units. <START> takes you from one phase to another. <SELECT> uploads transferred units during the Movement Phase. <OPTION> removes all units from the map (and later replaces them) so that you can see the terrain under the units.

### D. Save Game

To save the game in progress, press <SELECT>. Use a blank formatted disk or the scenario disk, the game is saved in the place reserved for Scenario 5.

After saving the game, you may edit the game with the EDITOR or reenter the game (by choosing Scenario 5 at the beginning of the program) and continue playing from where you left off.

## II. ONE-PLAYER GAME

### A. Introduction

The GAME consists of a series of phases of play. In each phase, as the events occur, several actions and commands are available to you.

NOTE In all cases, the units controlled by the human player are referred to as the friendly units and are controlled by joystick 1. The computer's forces are referred to as the enemy units.

The phases are listed below:

1. Observation Phase
2. Friendly Fire Phase
3. Friendly Movement Phase
4. Enemy Fire Phase
5. Friendly Fire Phase
6. Enemy Movement Phase
7. Enemy Fire Phase
8. Victory Phase
9. Save Game Phase

These phases must be executed in the above sequence. One game turn consists of the completion of all of these phases. Detailed information about the phases follows in Section II, C.

## B. The Main Screen

The first line displays your position in the game turn; the current Phase is highlighted. The Phase names are abbreviated as follows:

OB Observation Phase  
FF Friendly Fire Phase  
FM Friendly Movement Phase  
EF Enemy Fire Phase  
EM Enemy Movement

The first line indicates the Phase.

Below the Phase indicator is the window into the map, displaying one-fifth of the entire available map.

Below the map are the message windows. The first line generally is used for unit identification. With the cursor over a friendly unit (or an enemy unit? In the two-player version), the computer displays the ID number (e.g. #01) and its vital information in the form F = nn R = nn A = nn M = nn S = nn. The capital letters are abbreviations for the unit's Preposition, Defense, Range, Assault Value, Movement Points, and Strength; the nn is a number. This may be followed by an "A" if the unit has anti-tank capability and an "F" if the unit is armored. For a fuller explanation of the various capabilities see the EDITOR rules.

Below the information about the unit is a text area used to inform you of various conditions during the game.

At the bottom, the turn number is given.

## C. Phases of Play

### Observation Phase

In the Observation Phase, the joystick input activates a square cursor. Moving this cursor to a screen edge triggers the map

scroll until a map edge is reached.

As the cursor passes over a unit, the unit is identified and some of its characteristics are given (the form is described above). All of the values are set while designing the scenario with the EDITOR.

Units may be dug in and made combat-ready in this phase only, to dig in a unit or to make combat-ready a unit that is already dug in, place the cursor over the unit; press the trigger. The status of the unit is displayed in the message area. Dug-in units may not be moved. Dug-in units gain an advantage in defense (seen in the unit's status information) and recover more readily from damage. A unit may be dug in during the GAME only if it is indicated in the EDITOR that the unit is one that may be dug in. Dug-in units float on and off during the Observation Phase.

### Fire Phase

In the Fire Phase, a crosshair appears in the center of the cursor. To fire your units, place the cursor over the unit you want to fire, press the button. Then move the cursor to the area into which you want the unit to fire; press the button again. The unit will fire. If there is an enemy unit in the chosen area (a hidden unit will show up at this time) and it is hit, it will undergo damage. Whether the shot hit or missed its target is indicated in the message area. The heavier the cover, the harder it is to hit units under cover. Units that were moved during the turn have a lesser chance of hitting a target.

A unit will not fire if:

- 1) It has fired already in the current Fire Phase;
- 2) the target area is out of its range,
- 3) the firing unit is Suppressed, or
- 4) the target area cannot be seen by the firing unit (no Line of Sight).

The message area indicates whether any of these conditions exist. If a unit is Suppressed and you attempt to fire it, the message window informs you of this condition. Likewise, if a unit is Pinched and you attempt to move it, the message window informs you of this condition.

### Movement Phase

In the Movement Phase, you may move any unit capable of movement. A unit is moved, one square at a time, until its movement points are all gone.

To move a unit, place the cursor over it and press, then release, the fire button. The cursor turns green and the unit is "picked up" and may be moved with the joystick.

The following conditions define movement:

- 1) Each square has a different entry "cost" in movement points, corresponding to its density. Each square's cost is deducted from the moving unit's Movement Points.
- 2) You can move a unit as long as it has sufficient movement points remaining to enter the square to which you want it to move. When the movement points of a unit reach 0, it can no longer be moved.
- 3) The cursor turns red when the unit no longer has sufficient movement points to conduct an assault.
- 4) If a unit enters a square next to a hidden enemy unit, that enemy unit shows up on the map.
- 5) If a friendly unit tries to move away from a square next to any enemy unit, that enemy unit fires at the friendly unit.
- 6) If a friendly unit tries to move onto an enemy unit, an assault may occur. Assaults are explained below.
- 7) If a unit enters an area that is mined, the mines detonate.
- 8) Vehicles (trucks, tanks) cannot enter heavy woods, river banks, or water.
- 9) No unit, with the exception of an Engineer, may enter a blown bridge.
- 10) A Pinched unit cannot be moved.
- 11) If (with the EDITOR) a unit is given the ability to be transported, then it can be loaded onto a truck, helicopter, or boat unit type. To load the unit, move it next to and then onto the transporting unit. The unit disappears, and the transporting unit gets a blue line at the top and bottom of it to show that it is carrying something.
- 12) To unload a unit, place the cursor over the unit; press and hold the fire button. Moving the joystick in any direction while the button is held unloads the unit; it then can be moved its separate way.

Assaults may occur during the movement phase. An assault occurs when a unit attempts to enter a square occupied by an enemy unit. First, the enemy unit fires. After this shot is resolved, you may move your unit onto the enemy occupied square. A series of explosions occurs, and the assault is resolved. There are four possible results:

- 1) Your unit wins, and the enemy units fall back.
- 2) Your unit loses, and it falls back.
- 3) Your unit is eliminated.
- 4) The enemy unit is eliminated.

Enemy units may assault your forces. Your

units do not get an initial shot during such assaults.

If a unit that loses an assault has no place to which it can fall back, it is eliminated. Units do not retreat onto other units, into water or river edges, or into the map borders.

After an assault with a unit, you may continue moving the unit and assaulting with it as long as it has sufficient movement points.

### Enemy Fire Phase

In the Enemy Fire Phase, enemy units fire at friendly units. During these shots, identification of the targeted unit and reports of hits and misses appear in the message area.

### Enemy Movement Phase

In the Enemy Movement Phase, each enemy unit moves according to its aggressiveness and its strength. A unit given a higher aggressiveness (4, 5, 6, or 7) tends to move in the direction of your forces. In order to engage them in assault and combat, a unit with a lower aggressiveness rating tends to retreat from danger as it comes under withering fire. Such a unit does not move otherwise. A unit with aggressiveness 0 does not move (see the Editor Rules for a fuller explanation of aggressiveness).

### Victory Phase

In the Victory Phase that completes a turn, you receive victory points for enemy units eliminated. The enemy receives points for friendly units eliminated. The computer displays F = 000 and E = 000 for friendly and enemy points. This is a general tally of how you are doing.

In addition, you receive a victory point for each Victory Square you occupy at the end of each turn.

## III. TWO-PLAYER GAME

In the two-player version of the game, Player One (friendly) controls his units from Joystick 1 and Player 2 (enemy) from Joystick 2.

The rules for the two-player version are the same as for the one-player version except for the following differences:

### A. Observation Phase

There is no Observation Phase.

### B. Digging In

There is no "digging in" of units.

### C. Sequence of Play

#### Two-Player Turn Sequence

1. Friendly Artillery Plot (FA)
2. Enemy Artillery Plot (EA)
3. Friendly First Fire (FF)
4. Friendly Movement (FM)
5. Enemy Defensive Fire (EF)
6. Friendly Second Fire (FF)
7. Enemy First Fire (EF)
8. Enemy Movement (EM)
9. Friendly Defensive fire (FF)
10. Enemy Second Fire (EF)
11. Victory Phase
12. Save Game Phase

#### D. Player Turns

Phases 3-6 constitute the Friendly half of the game turn. Phases 7-10 constitute the Enemy half of the game turn.

#### E. Fire Capabilities

Each unit may fire only once in each turn. Therefore, a unit which fires during First Fire of a given player turn may not fire during Second Fire of the same player turn. Similarly, a unit which opportunity fires (See H below) during the opponent's movement phase will be unable to fire during the fire phase following that movement.

#### F. Artillery

Notice the addition of the Artillery Plot phase. These represent off-board artillery support. You may omit these phases if you choose. The Artillery is very damaging to both sides when it hits. Artillery should not be used in the Operation and Strategic scales; since in these scales it acts more like atomic weaponry.

Whether a side receives artillery is determined during the editing of the scenario. See the EDITOR rules below. If a side gets it, a black box will appear around the crosshair on the screen. To plot the artillery, move the crosshair to the square you want to target, and press the fire button. The location is stored, and the artillery lands at the beginning of the next turn. You may plot only on one square, replotting if you make an error.

To exit the Artillery Plot Phase, press <START>.

Artillery falls in a cluster around the plotted square. A unit that is hit has its strength halved immediately. Artillery damages any unit that is hit, regardless of who plotted it.

#### G. Pins and Suppressions

In the tactical and the tactical-operational scales, there is an additional effect of fire-power in the form of Pins and Suppressions. When a unit is hit, the chance of being Pinned or Suppressed depends on the type of fire it is experiencing. Under small arms

fire, the chance of Pin or Suppression is small. It is greater for MG, AT, and greatest for HE. A unit in cover has a lower chance of becoming Pinned or Suppressed.

A Pinned unit cannot move. A Suppressed unit can neither move nor fire.

A Pinned or Suppressed unit recovers gradually as long as it is not continually harassed by enemy fire.

#### H. Opportunity Fire

During an opponent's Movement Phase, a player may interrupt the movement by pressing his fire button. This brings the player into his Fire Phase. He may fire any unit that has not been fired in the current half turn. Units which already have fired flesh during the Fire Phase. This opportunity fire is just like normal fire, so revert to the opponent's movement, press <START>. Movement may be interrupted in this way only while a player is actually moving a unit.

#### I. Hit Effects

When a unit is hit, the unit

- 1) may lose some movement points due to mild disruption,
- 2) may become Pinned (no longer able to move),
- 3) may become Suppressed (no longer able to move or fire), or
- 4) may take strength losses.

### IV. EDITOR

The EDITOR provides, in effect, a blank sheet of paper and a pencil. You arrange elements, such as the shape and the appearance of the terrain on which the battle is fought, the full range of unit capabilities, and the initial deployment of the combatants. The information is stored on a data disk, and the situation is then available for enactment in the GAME.

The EDITOR may also be used to alter a scenario that you have created or that has been included in WARGAME CONSTRUCTION SET. Assemble your scenario carefully. There are many parameters to consider. Charts are included to help you initially to lay out the format of the forces involved. Use of these charts speeds the editing process and keeps errors to a minimum.

We suggest you play around with the map drawing routine or follow the instructions in the tutorial (Section V) to get used to the icons and the procedures. After even minimal use, drawing maps becomes easy.

#### A. Leading

Turn off everything but the disk drive. Insert the disk, EDITOR side up.

Turn the computer on. The editor loads and runs automatically. If you have an Atari XL or XE computer, you do not have to hold down <OPTION> when turning on the computer.

You need a Scenario Disk available on which to save your scenarios. Use a blank, formatted DOS 2.05 disk or a copy of the Scenario Disk on which scenarios previously were saved. Each disk holds up to 4 scenarios and one saved game.

Back up your Scenario Disk. If you choose to alter the included scenarios, there are two ways to do this:

- 1) Load each scenario on the disk into the EDITOR and save each to another blank, previously formatted disk.
- 2) Use the COPY command with DOS.

#### B. The Main Menu

There are eight options on the MAIN MENU, each highlighted by the up and down movement of the joystick. To activate press the trigger while the option of your choice is highlighted.

In most cases, pressing <OPTION> returns you to the MAIN MENU.

#### C. Main Menu Options

##### 1. Disk Access

This routine loads or saves scenarios.

You can load a scenario from the sample Scenario Disk or from the scenario disk you have created. You can inspect and change the scenario that you load.

First place a scenario disk or a blank, formatted disk in the disk drive. Then, as described above, select option 1 with your joystick.

The computer displays the names of the scenarios (no more than 5) on each disk. Scenario #5 is reserved for saved games, that is, you may save a game on any blank, formatted disk or on the scenario disk and access it through selection #5.

Move the joystick up and down to highlight each scenario name. If there are no scenarios on the disk, the name area is blank.

To load a highlighted scenario, press <SELECT>. A second prompt asks you to be sure the scenario disk has been inserted. Then press <START> to begin loading.

To save a scenario, press <START>. The computer asks you to type in the scenario name which can be up to 36 characters. Type the scenario number first and then the name you assign to it.

Note: The scenario will be saved in the slot highlighted. If there is already a scenario in

that slot it will be overwritten.

To return to the MAIN MENU, press <OPTION>.

##### 2. Draw Map

This routine gives you a set of terrain icons to be placed on the map to make the battlefield.

There are two modes in this routine: the Selection Mode and the Drawing Mode.

When you enter the routine, you are in the Selection Mode. A flashing cursor appears below the map. The cursor is used to select the specific icon you want to use currently. Moving the joystick up and down reveals more selections in the icon area. The class of icons is printed below the icons. Moving left and right allows you to pick a certain terrain icon out of the particular class. In addition to the terrain classification, the screen may display L, M or H, indicating that the terrain is Light, Medium, or Heavy cover. With some terrain classes, there is also a B, indicating that the class blocks the line of sight. For example, WOODS has an M and a B, indicating "medium cover" and "blocks line of sight"; while CREST has only an L, indicating "light cover" and "does not block line of sight".

When you locate on icon that you want to use, press the fire button. A cursor appears in the map area; you may move the cursor in any direction corresponding to the joystick direction. When the cursor is over an area in which you wish to place the chosen icon, press the button; the icon is deposited. The cursor retains the icon chosen as long as you remain in the Drawing Mode.

To return to the icon Selection Mode, move the cursor to one of the EXIT areas printed on the top and bottom of the map. The cursor disappears, and the icon Selection Mode is activated again.

There are some factors you should keep in mind while drawing terrain:

There is a special feature allowing you to erase an entire map. Insert the joystick into port 2; press the fire button. This replaces the map with clear icons. Since the Editor includes a map from one of the scenarios, you may wish to do this before drawing your own map.

ROAD and RIVER icons are designed to be contiguous. There are vertical and horizontal icons plus an icon for each corner to make turns or bends. The rivers are either a full blue or an edge. The full blue square is for the centers of the rivers, the edges for the banks. There are also two corner edges for making bends in the rivers. Using two edges beside each other with no center creates a narrower waterway.

**WOODS** consist of two center wood squares for variety and two icons for each edge. The centers should be placed where you want them to be, and the edges added to make them seem irregular.

**BRIDGES** placed over rivers allow all units to pass over the river. When an engineer-type unit enters a broken bridge, it rebuilds the bridge, allowing other units to cross. It is not clear which broken bridge is which. The first (left) icon is for horizon bridges and the right one for vertical bridges.

In the Tactical scale, **BUILDINGS** may be placed apart or may be placed right next to each other to make larger buildings. The leftmost icon in each class is a clear terrain icon; it is there for easy access in cleaning up mistakes. In the building icons, the last icon on the right is a square icon. It is a Victory Square. For game purposes, it acts like a building/city square; in addition, when a Victory Square is occupied at the end of the turn, the side occupying the square receives one bonus victory point for each one occupied.

There are three **MINE** icons. When a friendly unit enters one of these, the unit undergoes a mine attack. The first mine icon appears as a solid square. During the game, this icon appears as clear terrain. It should be used for hidden mines. The second mine icon is the standard mine icon. It is displayed as it appears on the map. In the game, the third is a road mine icon; it is used for hiding mines along roads.

There are tricks to be used in drawing ROADS and WOODS.

To place a road, go first to the Choose Scale option on the MAIN MENU; select Operation Scale. It is clear. In this scale, which way the tool icons bend, therefore, roads can be drawn easily. After placing all roads, return to the Choose Scale options, and select the scale you want to use for your scenario. You should then check the roads to make sure they are as you want them.

There is a special utility for drawing woods. Start with the first full woods icon (the icon on the left). Place this icon in all areas in which you want woods. Return to the icon selection mode, press <SELECT>. This action randomizes the woods centers and places the woods edge icons around the edges, thereby speeding the entire process. Should you wish to use this option, place the centers at least 2 squares from any other terrain so that the edges do not overwrite the other terrain.

To exit the map drawing routine, press <OPTION>.

### 3. Edit Map Colors

With this routine, you can use the joystick to change the colors of the map and units. Moving the joystick up or down changes the color. Moving left or right changes the hue (shade).

There are five classifications of color "TREES", "ROADS", "BACKGROUND", "UNITS", and "WATER".

"TREES": Indicates the dark color, a dark green. In its normal operation, it is used as the main color in trees and for shading lighter colors in buildings and roads.

"ROADS", initially, is a light brown. It dominates in roads in the Tactical Scale and Tactical-operation Scales. In the Operational Scale, "ROADS" is the dark green of "TREES".

"BACKGROUND": the most obvious color, is the color of clear, empty terrain.

"UNITS": Initially, is the white highlighting of the units. Generally, unless a white background is to be used, the color should be left alone.

"WATER": initially, is light blue, and is the color of the rivers on the map.

You can check the map and unit icons with the Deploy Units routine. If you change colors, check to be sure you have created the effect you want.

### 4. Edit Friendly Units

With the routine, you can define the capabilities of the units you are to control in the game.

Moving the joystick up and down moves the pointers up and down. In most cases, moving the joystick left or right alters the feature of the chosen unit.

UNIT NUMBER: The identification number of the unit is a number between 1 and 31. To increase or decrease, first be sure the <> markers are on the unit number line, and then move the joystick right or left. Holding the button down while doing the hastens the process. During play of the game, the unit number is displayed as "nn", in which nn is the unit number corresponding to the unit number selected here.

PREPOWER: Firepower is a number between 1 and 99. Generally, it is the degree of damage a unit does to another unit when it fires and hits. The higher the number, the greater the damage.

DEFENSE: Defense is a number ranging from 0 to 99. It represents how well a unit takes hits. Generally, it is subtracted from a firing unit's firepower to get the true damage a hit

incurs. Example: A unit with a firepower of 20 hits a unit with a defense of 15. The overall damage done is 5 hit points (See STRENGTH for an explanation of hit points). Other factors, such as cover, range, etc. also have an effect. These values are simply a starting point.

ASSAULT: Assault is a number ranging from 0 to 14. It represents a base value in calculating assaults. Generally, the higher the number, the greater the chance of its winning an assault in an assault or overrun, the assaulting unit's assault factor is added to its strength. Then the assaulted unit's assault factor is added to its strength plus any terrain bonus (1 for light, 2 for medium, 4 for heavy). The two results are compared initially, there is a 50% chance of an assaulting unit winning. This chance is adjusted upward or downward depending on the calculated result from above. If the attacker's value is less than the defenders', then the base chance of success is lessened on a proportioned basis. If greater, then the chance of success increases.

Because of the other variables included, the value alone does not indicate a specific ability, only a generality in most cases with assault and assaultive of equal strength, the one with the higher assault factor has the edge.

MOVEMENT: Movement is a number ranging from 1 to 99 (0 to 99 for enemy units). For ground units, it is the number of movement points the unit can move in a given movement phase. For helicopters, it is the total number of squares the helicopter can move (helicopters are unaffected by terrain). For boats, it is the number of water squares the boat can traverse in a given movement phase. Movement costs for ground units are listed on the Terrain Effects Chart.

In the one-player version, the movement allowance of an enemy (computer) ground unit is the number of squares the unit moves, not the number of movement points assigned to it.

STRENGTH: Strength is a number ranging from 1 to 7. It represents a multiple of the actual strength of the unit (the hit points it can endure). To get the actual strength of a unit that the game uses, multiply this number by 32 and add 32. Example: A unit with a strength of 6 has 224 hit points. Continuing with the example given above in Defense, the unit with a defense of 15 that was hit by one with a firepower of 20 (all else being equal) goes from 224 to 219 after the hit. The essential idea to keep in mind is that the higher the strength value, the longer the

### TERRAIN EFFECTS TABLE

TERRAIN TYPE	IN THRE	IN SEVEN	HIT	AT/HP	UNIT TYPE
Clear	2	2	2	1	P 2
Roads	1	1	1	1	P 1
Bridge	3	3	3	1	P 3
Blown bridge	3	P *	3	1	P
Trees	3	3	3	1	P 3
Credits	3	3	3	1	P 3
Hilltop	6	6	6	1	P 6
Woods	6	61	6	6	P 6
Mines	*	7	7	1	P 3
Buildings	8	8	8	1	P 8
River	8	P	8	8	1 1 8
Border	P	P	P	P	P P P

KEY:

\* = Cost in movement points

P = Prohibited

\* = All remaining movement points

1 = TN and TR prohibited in woods centers

unit survives in battle. In an attack, if a unit's actual strength is less than the firepower directed at it, the unit is eliminated.

RANGE: Range is a number ranging from 0 to 20. It represents the number of squares there can be between a firing unit and its target for the unit to fire. Units with a range of 0 can assault only; they cannot fire. This enables you to simulate larger scales and still have some combat occur.

FIRE TYPE: First, the PRE TYPE chosen determines how the unit sounds when it fires. There are four types of fire used in the game: 1) SM (small arms) sounds like a short crack; 2) MG (machine gun) sounds like a series of cracks; 3) AT (anti-tank gun) sounds like a short whistle and an explosion; and, 4) HE (mortar and artillery) sounds like a longer whistling sound followed by an explosion.

Second, the type of fire chosen has an impact also on Pinning and Suppressing units in the tactical and tactical-operational scales. In the game, when a unit is hit, there is a chance it will become Pinned or Suppressed. The chance is small if the attack is with SM, greater if the attack is with an MG, even greater if it is with AT, and very high if the attack is with HE.

For best effect, choose a fire type that is appropriate for the unit. Keep in mind its Pin/Suppression effects, but do not base your choice of fire type on that alone.

UNIT TYPE: Your choice of unit type, unlike that of fire type, affects play. Keep in mind that the general classification cannot itself

cover all characteristics. For example, designating a unit as a tank does not assure that it will act as a tank in the game. You have to also give it firepower, movement, and armor characteristics that make it tank-like.

There are currently 9 types available. The abbreviations used on the screen and the characteristics follow:

- **INF (Infantry):** Infantry units are assumed to be leg units. They may enter any type of terrain.

- **AT (Tank):** Tank units are assumed to be tank-like vehicles. They are not permitted to enter water or heavy woods. They cannot be pinned or suppressed.

- **EN (Engineer):** Engineer units act as leg units. In addition, they clear mines and rebuild destroyed bridges.

- **MR (Mortar):** Mortar units are limited range, indirect fire units. They are not subject to Line of Sight restrictions, but they are subject to Range restrictions. The range value given above is not used; instead they are given a range of about 20 squares.

- **GN (Gun):** Gun units are cannons. They are similar to mortars, but they have no range restrictions.

- **SP (Special):** Only the Enemy units can be Special units. They generally act as normal units do, the one exception is that if they're a helicopter, they eliminate it automatically. This to balance the extreme power of the helicopters.

The following units are available for Friendly units only. They are the only types that may be used to transport other units. For example, if you want Infantry riding tanks, design the tank to act as a tank, but give it a TR (Truck) unit classification.

- **TR (Truck):** Truck units are wheeled vehicles. They do not enter heavy woods or water. They should be used mainly for transport.

- **HL (Helicopter):** Helicopter units are unaffected by terrain. They move at the rate of 1 square per movement point. They are good for transport and if given some firepower, as gunships. They are not restricted to Line of Sight firing and can see over most terrain features.

- **BT (Boat):** Boat units move on water only. They can be transported to water if given the capability. They can be used as gun-boats or as transports for units making beach assaults or river crossings.

**TRANSPORT:** This is a yes/no flag. If "yes," then the unit being edited can be transported by trucks, helicopters, or boats.

**DIG IN:** This is a yes/no flag. If "yes," then a friendly unit can "dig in" during the game. Use at your discretion. It is available only for the one-player version of the game.

**AT CAPABILITY:** This is a yes/no flag. If "yes," then the unit can fire and inflict damage on armor targets out to its range. If "no," the unit can fire at armor only if adjacent.

**AT DEFENSE:** This is a yes/no flag. If "yes," the unit is treated as an armored target and can be hurt by ranged fire only if the unit firing at it has AT Capability.

**DUPPLICATE:** After you have assigned a set of attributes to a unit, you may use this feature to quickly assign the same attributes to one or more other units.

Set the unit number to the number of the new unit to be created. Move the brackets down to the DUPLICATE line, and press the fire button. A number appears to the right. Use the joystick to adjust the number to the number of the previously defined unit that you now want to duplicate. Press the button again, and the new unit becomes an exact copy of the prior unit. Repeat the procedure to create additional duplicate units.

**CHOOSE ICON:** If you are on the line and move the joystick left or right, you can see the character below change shape. There are many shapes available. Generally, you should keep the units with the light background as your units and save the dark background units as enemy units.

## 5. Edit Enemy Units

There are 31 available enemy units. The menu for this routine is similar to the menu for EDIT FRIENDLY UNITS, two lines are omitted: Transport and Dig in. One line is added: Aggression.

**AGGRESSION:** Aggression is a number ranging from 0 to 7. If you stop on this line and push the joystick left or right, a number appears. This number can be raised or lowered with the joystick moves to the left or right. It indicates how the enemy reacts during a game. The higher the number, the more aggressive the actions of the enemy unit.

A unit with an aggression level of 0 does not move and has a "hold at all costs" order. Levels 1, 2, and 3 indicate a unit that mainly will retreat to better positions if under heavy duress. This retreat is oriented upstream; that is, the unit retreats toward the top of the map.

As the aggression level rises to 4 and 5, the unit is more likely to leave its position and charge your units. This charge is on individual act and generally is oriented

toward the nearest unit. At level 6, the unit unconditionally charges the nearest enemy unit that it can see. At level 7, the unit becomes a counterattacker. This means that as the game progresses, the unit is triggered to pursue relentlessly your units until they are gone or it is gone. A unit with an aggression level of 7 does not move until a counterattack is triggered. The counterattack is triggered at random, the chance that it will occur increases as the turns increase. This allows you to set some units in reserve for the enemy forces. These units, if put at the top of the screen away from the main battle, all counterattack at the same time if they are set to aggression 7.

To summarize, if you want a unit to act wimpy, set aggression at 3 or less. If you want it to hassle your units, set it at 4 or 5. If you want it to hassle and counterattack, set it at 6. If you want it to counterattack only, set it at 7. This gives you some leeway as to setting up the enemy disposition. For example, you could have front line of 1 and 2 aggression level units, and behind them, a group of tanks with aggression 6 or 7 who "come to the aid" of the enemy front line units, hopefully in the nick of time.

## 6. Deploy Units

With the routine, you indicate the starting locations of all friendly and enemy units. As a guideline, keep in mind the orientation: your forces tend toward the top of the map offensively, and the enemy units tend toward the bottom offensively and the top defensively. These tendencies occur in units with aggression levels of 4, 5, or 6. Therefore, set up your forces initially in the bottom quarter of the map; and set up the enemy forces in the top quarter. Of course, other arrangements are possible if you prefer.

**DEPLOYING FRIENDLY UNITS:** To deploy a friendly unit, use the joystick to place the cursor over the unit, and then press the fire button. A cursor appears on the map. Use the joystick to move this cursor to the desired location for the unit at the start of the game, and then press the fire button. After the unit is placed, control reverts to the unit icon line.

**DEPLOYING ENEMY UNITS:** Each enemy unit can be in one of three spots at the start of the game; therefore, you have to spot each enemy unit 3 times. You will not know which of the three is the actual location until the unit shows up in play. A number next to the unit ID and the sound of beeps indicate how many placements remain.

You can spot a unit twice in the same place, increasing its chance of starting there. If you spot it in the same place three

times, it is automatically placed there at the start of the game.

**FEATURES:** Units that have been deployed are indicated by a blue line above and below the unit. The screen appears as it does in the map drawing routine, but instead of terrain icons, there are unit icons. You can see under a flashing cursor the unit disposition (friendly or enemy) and the unit number. Moving the joystick left and right moves the cursor left and right. Moving it up and down brings in the next set of units.

Units already deployed can be re-spotted, simply by moving the cursor to another location and pressing the fire button. Units can be un-spotted by pressing the SELECT key. To return to the main menu, press the OPTION key.

**SPECIAL FEATURE:** To wipe out all deployed units, insert the joystick into port 2 and press the fire button. This removes all friendly and enemy units from the map, and they may be re-deployed. Since the Editor includes units from one of the scenarios, you will need to do this before deploying your own units.

## 7. Print Map

This routine gives you an ASCII representation of the map. The printout is rotated ninety degrees so that the right side of the printout will be the top of the map. In the printout, X is border, + are roads, # are building/cities, & are rivers/water, and - are minor terrain features.

## 8. Choose Scale

This routine changes the appearance of the map and sets up some changes in the game, mainly in the buildings and roads. In the Strategic scale, rivers are changed also.

In the Operational and Strategic scales, units are not pinned or suppressed by fire.

## 9. Artillery Option

Artillery can be toggled on and off for the two-player version by pressing the OPTION key. If artillery is on, both players receive artillery each turn; if off, neither player receives any.

## V. TUTORIAL

### A. Introduction

All games begin with ideas about settings, characters, and goals. As the ideas become more clearly defined, scenarios are developed. Some of the original ideas are dropped as others that seem more appropriate arise and are incorporated in the plans. The WARGAME CONSTRUCTION SET has easy editing features that allow you

great flexibility in carrying out your designs.

This tutorial illustrates the entire process, from thinking in general about the type of game to entering the details into the computer and saving your efforts. Follow our suggestions for creating the game scenario, developing the preliminary plans on paper, drawing the map on the screen, entering the data, and then saving the information on a disk.

### **8. Planning the Game**

1. Gant

With the WARGAME CONSTRUCTION SET, you can simulate conflicts in many genres: historical battles of any period, literary classics, fantasy, science fiction, etc. For this first tutorial game, we have chosen to help you design a small *fantasy* scenario.

### 2. Theme and Plot

Having chosen fantasy, we thought of a story line that will allow our characters to fight for the triumph of good over evil.

The necromancer **Iktul** has been terrorizing the poor residents of a minor barony for the past several months. The baron, with few men of his own, has enlisted the aid of a group of itinerant adventurers. If our heroes succeed in fighting their way past Iktul's minions and in destroying the necromancer and his laboratory, they will be rewarded greatly.

### 3. Map Scale

In a scenario based on a real situation, the map scale is of primary importance. Basing your computer map on an already existing map, you must decide what scale will best represent it.

in a fantasy or sci-fi scenario, the scale is of lesser importance. It may be arbitrarily chosen or even left undefined as it will be in this tutorial name.

4 Moon Star

Your choice of map size should also be influenced by the type of scenario planned. In a simulation of a historical battle, you should include the entire region in which the battle was fought.

To broaden the selection of stratagems available to the players, also include areas that might have been used, but were not

In addition to the type of scenario, the number of units to be included in the scenario should determine the map size. Too many units on a small map may create congestion and a lack of mobility. Too few units on a large map may result in a difficult, tedious march to be closer enough to engage the enemy. These effects may be desirable in some few circumstances, but more often are inappropriate.

For our game, we will use a very small ( $15 \times 15$ ) map.

### 5. Sketch Map

You will find it useful to sketch your map on graph paper first. Draw your active map area and then the terrain, following the same sequence that is recommended for developing the map on the computer (outlined in Section D.2).

#### **4. Number and Scale of Units**

The number and scale of units are closely related. The maximum number of units on each side is 31, the unit scale must accommodate this limitation. For example, you may decide that in a platoon action, the units will represent squads, fireteams, and individual soldiers. This choice will affect the number of units comprising the platoon.

In our game, you will use individuals for the adventurers, brul, and some of brul's minions. Less worthy minions of brul will represent groups of a dozen or more lesser beings.

## 7. Unit Design

**ATTRIBUTES:** Having made preliminary decisions as to unit scale and number of units, you should be ready to assign numerical values. Make a chart similar to the example in Figure 1A. Across the top, fill in the units that you wish to include in the scenario. Then, starting from the left side of each row, enter

It is helpful to define norms for these values, the is more easily done for attributes such as Assault and Strength as they have a comparatively narrow range and the arithmetic median can serve as a useful norm.

It is more difficult to select norms for Range and Movement as, in most cases, these have to be smaller than the median value to be meaningful. In making both decisions, map scale should be considered. In selecting Movement rates, terrain movement costs are also an important factor. Because the values chosen leave room for variation upwards or downwards.

Firepower and Defense must be balanced carefully against each other. Essentially, for every increment of 32 by which Firepower exceeds Defense, the Strength of the largest will be decreased by 1. This means that a small difference between normal Firepower and normal Defense will create a scenario with few losses. A wide difference will result in greater casualties and more rapid attrition of units. Use this relationship to create desired effects in your scenarios. If a unit represents a large organization, its elimination should not occur readily as that of a unit representing a single man.

Figure 1A

*Sylvan  
Sporty  
Sweaty  
Tartus  
Hawke  
Shaggy  
Vic Top  
Kane  
Goliath  
Uta  
Skeletor  
Zombies  
Archies  
Goobers  
Giants*

POWER	NORM = 32
DEFENSE	NORM = 16
ASSAULT	NORM = 7
MOVEMENT	NORM = 16
STRENGTH	NORM = 4-5
RANGE	NORM = 5
FIRE TYPE	NORM = SA
UNIT TYPE	NORM = INF
TRANSPORTABLE	NA NA NA NA NA NA NORM = Y
DIG IN	NA NA NA NA NA NA NORM = Y
AT CAPABLE	NA NA NA NA NA NA NORM = N
AT DEFENSE	NA NA NA NA NA NA NORM = N AGGRESSIONNESS

### Box and whisker

For your purposes, a moderate difference will work best; units will fight it out in a few turns. The norms selected are toward the lower end of the scale; this allows for the creation of some very powerful units.

It is less crucial to assign norms to the final attributes: Fire Type, Unit Type, Transportability, Dig-In Ability, Anti-tonk Capability, and Anti-tonk defense.

For our tutorial game, the norms selected are shown in Figure 1B. Note that side two differs slightly in format from that of side one: ONE OR TWO PLAYERS. Before designing the units, consider whether the scenario will be played primarily by one solitaire player or by two opponents. Although any scenario may be played by either one or two players, certain design features are more suited to each mode. If a scenario is designed for one mode and played in the other, a lack of balance may result.

In a two-player scenario, forces should be balanced approximately. A slight edge in material may be given to player two to offset the lack of transportation ability, but overall, the two players should be expected to play a fairly even game. In a one-player scenario, the computer opponent cannot be expected to play with as much verve and flexibility. Thus, the computer should be given an edge. This may be done by an advantage in the number of units or the strength of its units or by assigning the computer side control of one or more objectives which provide "free" victory points as long as they remain controlled by the computer's forces.

When designing your units, remember to set the Aggression level of units for player two even if the scenario is primarily designed for two players. This will allow solitaire play without additional adjustment.

For our tutorial game, you will be designing a one-player scenario. To provide balance, you will give the computer side extra units and control of a single objective of the start of the game.

## C. Character (Unit)

### 1. The Adventurers

**Sylvan of the Glade:** An elf bowman of great skill, thin of elves as quick and lithe, but somewhat frail. Sylvan should have an excellent missile, good movement speed, but below average physical characteristics.

**Shorty Brrophur:** A dwarf warrior, stout and heavy. Dwarves are typically strong and healthy. Shorty should be given above average physical characteristics. However, his short legs call for a reduced movement

speed. He has no missile weapons to speak of. Shorty can remove traps and jury-rig bridges.

**Swifly the Dip:** A thief or scout, lightning fast. Swifly has an excellent movement speed, but below average physical and combat values. Swifly can remove traps and jury-rig bridges.

**Tarkus Starkiller:** A great lizardman warrior. The epitome of a physical warrior, Tarkus should be rated very high in all physical categories. His thick hide acts as protection from most missile weapons, but his bulk makes for reduced movement.

**Hunk Hawker:** A mercenary, soldier of fortune. Hunk, a healthy specimen, wears armor and is well practiced with sword and bow. He is an all-around useful fellow with no outstanding strengths or weaknesses.

**Shazor the Wise:** An elderly mage. Shazor is weak and slow, but practiced in the mystic arts. He can hurl bolts of magic at his foes.

**Victor von Von Armastrout:** Victor is one of the world's greatest swordsmen. He rejects missile weapons because he thinks them unmanly.

**Sister Kate:** A priestess of storms. Kate is a troll young woman of great plenty. She can summon from huge bolts of lightning from even cloudless skies.

**Grunbar the Ancient:** A huge, fire-breathing dragon. Without peer in any category, Grunbar is by far the strongest of the adventurers. His only disadvantage is the short range of his breath. Grunbar can fly.

### 2. *btul and His Guardians*

**BTUL:** Awakened sorceror and necromancer. *btul* has a ward which protects him from all ranged attacks. He will not leave his laboratory, preferring to have his minions do his bidding. *btul* can hurl tremendously destructive bolts of magic to any place in the world. He does this by using the palantir in his possession.

**SKELETONS:** There are dozens of animated skeletons, each armed with sword and shield. They are quite vicious and utterly fearless.

**ZOMBIES:** There are dozens of animated corpses. Slightly sturdier than skeletons, zombies are just as fearless.

**UNDEAD ARCHERS:** Animated warrior ghouls. *btul* has animated the remains of a mercenary archer company which had been led unsuccessfully against his minions. Now they, too, are his minions.

**URGND THE GIANT:** A twenty-foot-tall humanoid. Urgnd the Giant lives on a hill near *btul*'s lab and has formed an alliance with the necromancer. He is formidable in physical combat, capable of hurling huge rocks over great distances.

**GOLEM:** Magically animated stone statues. *btul* is surrounded by his four golem bodyguards at all times. Anyone approaching *btul* must pass them. They are massive and virtually indestructible.

### 3. Aggression Settings

*btul*, his Golem guards, and Urgnd the Giant are expected to guard their posts to the death. The archers should snipe at intruders, but stay under cover. Therefore, to carry but these clients, you should place these characters carefully and set their aggression level to 0 to prevent movement.

### 4. Units

Each adventurer is one unit for a total of nine for side one.

Side two and the giant are each one unit for side two. In addition there are four golems (one to stand on each space horizontally or vertically adjacent to *btul*), two archer units, two zombie units, and three skeleton units. The total for side two is thirteen units, giving the computer the suggested fifty percent advantage.

	btul	Wiz 1	Wiz 2	Wiz 3	Wiz 4	Wiz 5	Wiz 6	Wiz 7	Wiz 8	Wiz 9	Wiz 10	Wiz 11	Wiz 12	Wiz 13	Wiz 14	Wiz 15	Wiz 16	Wiz 17	Wiz 18	Wiz 19	Wiz 20	Wiz 21	Wiz 22	Wiz 23	Wiz 24	Wiz 25	Wiz 26	Wiz 27	Wiz 28	Wiz 29	Wiz 30	Wiz 31	Wiz 32	Wiz 33	Wiz 34	Wiz 35	Wiz 36	Wiz 37	Wiz 38	Wiz 39	Wiz 40	Wiz 41	Wiz 42	Wiz 43	Wiz 44	Wiz 45	Wiz 46	Wiz 47	Wiz 48	Wiz 49	Wiz 50	Wiz 51	Wiz 52	Wiz 53	Wiz 54	Wiz 55	Wiz 56	Wiz 57	Wiz 58	Wiz 59	Wiz 60	Wiz 61	Wiz 62	Wiz 63	Wiz 64	Wiz 65	Wiz 66	Wiz 67	Wiz 68	Wiz 69	Wiz 70	Wiz 71	Wiz 72	Wiz 73	Wiz 74	Wiz 75	Wiz 76	Wiz 77	Wiz 78	Wiz 79	Wiz 80	Wiz 81	Wiz 82	Wiz 83	Wiz 84	Wiz 85	Wiz 86	Wiz 87	Wiz 88	Wiz 89	Wiz 90	Wiz 91	Wiz 92	Wiz 93	Wiz 94	Wiz 95	Wiz 96	Wiz 97	Wiz 98	Wiz 99	Wiz 100	Wiz 101	Wiz 102	Wiz 103	Wiz 104	Wiz 105	Wiz 106	Wiz 107	Wiz 108	Wiz 109	Wiz 110	Wiz 111	Wiz 112	Wiz 113	Wiz 114	Wiz 115	Wiz 116	Wiz 117	Wiz 118	Wiz 119	Wiz 120	Wiz 121	Wiz 122	Wiz 123	Wiz 124	Wiz 125	Wiz 126	Wiz 127	Wiz 128	Wiz 129	Wiz 130	Wiz 131	Wiz 132	Wiz 133	Wiz 134	Wiz 135	Wiz 136	Wiz 137	Wiz 138	Wiz 139	Wiz 140	Wiz 141	Wiz 142	Wiz 143	Wiz 144	Wiz 145	Wiz 146	Wiz 147	Wiz 148	Wiz 149	Wiz 150	Wiz 151	Wiz 152	Wiz 153	Wiz 154	Wiz 155	Wiz 156	Wiz 157	Wiz 158	Wiz 159	Wiz 160	Wiz 161	Wiz 162	Wiz 163	Wiz 164	Wiz 165	Wiz 166	Wiz 167	Wiz 168	Wiz 169	Wiz 170	Wiz 171	Wiz 172	Wiz 173	Wiz 174	Wiz 175	Wiz 176	Wiz 177	Wiz 178	Wiz 179	Wiz 180	Wiz 181	Wiz 182	Wiz 183	Wiz 184	Wiz 185	Wiz 186	Wiz 187	Wiz 188	Wiz 189	Wiz 190	Wiz 191	Wiz 192	Wiz 193	Wiz 194	Wiz 195	Wiz 196	Wiz 197	Wiz 198	Wiz 199	Wiz 200	Wiz 201	Wiz 202	Wiz 203	Wiz 204	Wiz 205	Wiz 206	Wiz 207	Wiz 208	Wiz 209	Wiz 210	Wiz 211	Wiz 212	Wiz 213	Wiz 214	Wiz 215	Wiz 216	Wiz 217	Wiz 218	Wiz 219	Wiz 220	Wiz 221	Wiz 222	Wiz 223	Wiz 224	Wiz 225	Wiz 226	Wiz 227	Wiz 228	Wiz 229	Wiz 230	Wiz 231	Wiz 232	Wiz 233	Wiz 234	Wiz 235	Wiz 236	Wiz 237	Wiz 238	Wiz 239	Wiz 240	Wiz 241	Wiz 242	Wiz 243	Wiz 244	Wiz 245	Wiz 246	Wiz 247	Wiz 248	Wiz 249	Wiz 250	Wiz 251	Wiz 252	Wiz 253	Wiz 254	Wiz 255	Wiz 256	Wiz 257	Wiz 258	Wiz 259	Wiz 260	Wiz 261	Wiz 262	Wiz 263	Wiz 264	Wiz 265	Wiz 266	Wiz 267	Wiz 268	Wiz 269	Wiz 270	Wiz 271	Wiz 272	Wiz 273	Wiz 274	Wiz 275	Wiz 276	Wiz 277	Wiz 278	Wiz 279	Wiz 280	Wiz 281	Wiz 282	Wiz 283	Wiz 284	Wiz 285	Wiz 286	Wiz 287	Wiz 288	Wiz 289	Wiz 290	Wiz 291	Wiz 292	Wiz 293	Wiz 294	Wiz 295	Wiz 296	Wiz 297	Wiz 298	Wiz 299	Wiz 300	Wiz 301	Wiz 302	Wiz 303	Wiz 304	Wiz 305	Wiz 306	Wiz 307	Wiz 308	Wiz 309	Wiz 310	Wiz 311	Wiz 312	Wiz 313	Wiz 314	Wiz 315	Wiz 316	Wiz 317	Wiz 318	Wiz 319	Wiz 320	Wiz 321	Wiz 322	Wiz 323	Wiz 324	Wiz 325	Wiz 326	Wiz 327	Wiz 328	Wiz 329	Wiz 330	Wiz 331	Wiz 332	Wiz 333	Wiz 334	Wiz 335	Wiz 336	Wiz 337	Wiz 338	Wiz 339	Wiz 340	Wiz 341	Wiz 342	Wiz 343	Wiz 344	Wiz 345	Wiz 346	Wiz 347	Wiz 348	Wiz 349	Wiz 350	Wiz 351	Wiz 352	Wiz 353	Wiz 354	Wiz 355	Wiz 356	Wiz 357	Wiz 358	Wiz 359	Wiz 360	Wiz 361	Wiz 362	Wiz 363	Wiz 364	Wiz 365	Wiz 366	Wiz 367	Wiz 368	Wiz 369	Wiz 370	Wiz 371	Wiz 372	Wiz 373	Wiz 374	Wiz 375	Wiz 376	Wiz 377	Wiz 378	Wiz 379	Wiz 380	Wiz 381	Wiz 382	Wiz 383	Wiz 384	Wiz 385	Wiz 386	Wiz 387	Wiz 388	Wiz 389	Wiz 390	Wiz 391	Wiz 392	Wiz 393	Wiz 394	Wiz 395	Wiz 396	Wiz 397	Wiz 398	Wiz 399	Wiz 400	Wiz 401	Wiz 402	Wiz 403	Wiz 404	Wiz 405	Wiz 406	Wiz 407	Wiz 408	Wiz 409	Wiz 410	Wiz 411	Wiz 412	Wiz 413	Wiz 414	Wiz 415	Wiz 416	Wiz 417	Wiz 418	Wiz 419	Wiz 420	Wiz 421	Wiz 422	Wiz 423	Wiz 424	Wiz 425	Wiz 426	Wiz 427	Wiz 428	Wiz 429	Wiz 430	Wiz 431	Wiz 432	Wiz 433	Wiz 434	Wiz 435	Wiz 436	Wiz 437	Wiz 438	Wiz 439	Wiz 440	Wiz 441	Wiz 442	Wiz 443	Wiz 444	Wiz 445	Wiz 446	Wiz 447	Wiz 448	Wiz 449	Wiz 450	Wiz 451	Wiz 452	Wiz 453	Wiz 454	Wiz 455	Wiz 456	Wiz 457	Wiz 458	Wiz 459	Wiz 460	Wiz 461	Wiz 462	Wiz 463	Wiz 464	Wiz 465	Wiz 466	Wiz 467	Wiz 468	Wiz 469	Wiz 470	Wiz 471	Wiz 472	Wiz 473	Wiz 474	Wiz 475	Wiz 476	Wiz 477	Wiz 478	Wiz 479	Wiz 480	Wiz 481	Wiz 482	Wiz 483	Wiz 484	Wiz 485	Wiz 486	Wiz 487	Wiz 488	Wiz 489	Wiz 490	Wiz 491	Wiz 492	Wiz 493	Wiz 494	Wiz 495	Wiz 496	Wiz 497	Wiz 498	Wiz 499	Wiz 500	Wiz 501	Wiz 502	Wiz 503	Wiz 504	Wiz 505	Wiz 506	Wiz 507	Wiz 508	Wiz 509	Wiz 510	Wiz 511	Wiz 512	Wiz 513	Wiz 514	Wiz 515	Wiz 516	Wiz 517	Wiz 518	Wiz 519	Wiz 520	Wiz 521	Wiz 522	Wiz 523	Wiz 524	Wiz 525	Wiz 526	Wiz 527	Wiz 528	Wiz 529	Wiz 530	Wiz 531	Wiz 532	Wiz 533	Wiz 534	Wiz 535	Wiz 536	Wiz 537	Wiz 538	Wiz 539	Wiz 540	Wiz 541	Wiz 542	Wiz 543	Wiz 544	Wiz 545	Wiz 546	Wiz 547	Wiz 548	Wiz 549	Wiz 550	Wiz 551	Wiz 552	Wiz 553	Wiz 554	Wiz 555	Wiz 556	Wiz 557	Wiz 558	Wiz 559	Wiz 560	Wiz 561	Wiz 562	Wiz 563	Wiz 564	Wiz 565	Wiz 566	Wiz 567	Wiz 568	Wiz 569	Wiz 570	Wiz 571	Wiz 572	Wiz 573	Wiz 574	Wiz 575	Wiz 576	Wiz 577	Wiz 578	Wiz 579	Wiz 580	Wiz 581	Wiz 582	Wiz 583	Wiz 584	Wiz 585	Wiz 586	Wiz 587	Wiz 588	Wiz 589	Wiz 590	Wiz 591	Wiz 592	Wiz 593	Wiz 594	Wiz 595	Wiz 596	Wiz 597	Wiz 598	Wiz 599	Wiz 600	Wiz 601	Wiz 602	Wiz 603	Wiz 604	Wiz 605	Wiz 606	Wiz 607	Wiz 608	Wiz 609	Wiz 610	Wiz 611	Wiz 612	Wiz 613	Wiz 614	Wiz 615	Wiz 616	Wiz 617	Wiz 618	Wiz 619	Wiz 620	Wiz 621	Wiz 622	Wiz 623	Wiz 624	Wiz 625	Wiz 626	Wiz 627	Wiz 628	Wiz 629	Wiz 630	Wiz 631	Wiz 632	Wiz 633	Wiz 634	Wiz 635	Wiz 636	Wiz 637	Wiz 638	Wiz 639	Wiz 640	Wiz 641	Wiz 642	Wiz 643	Wiz 644	Wiz 645	Wiz 646	Wiz 647	Wiz 648	Wiz 649	Wiz 650	Wiz 651	Wiz 652	Wiz 653	Wiz 654	Wiz 655	Wiz 656	Wiz 657	Wiz 658	Wiz 659	Wiz 660	Wiz 661	Wiz 662	Wiz 663	Wiz 664	Wiz 665	Wiz 666	Wiz 667	Wiz 668	Wiz 669	Wiz 670	Wiz 671	Wiz 672	Wiz 673	Wiz 674	Wiz 675	Wiz 676	Wiz 677	Wiz 678	Wiz 679	Wiz 680	Wiz 681	Wiz 682	Wiz 683	Wiz 684	Wiz 685	Wiz 686	Wiz 687	Wiz 688	Wiz 689	Wiz 690	Wiz 691	Wiz 692	Wiz 693	Wiz 694	Wiz 695	Wiz 696	Wiz 697	Wiz 698	Wiz 699	Wiz 700	Wiz 701	Wiz 702	Wiz 703	Wiz 704	Wiz 705	Wiz 706	Wiz 707	Wiz 708	Wiz 709	Wiz 710	Wiz 711	Wiz 712	Wiz 713	Wiz 714	Wiz 715	Wiz 716	Wiz 717	Wiz 718	Wiz 719	Wiz 720	Wiz 721	Wiz 722	Wiz 723	Wiz 724	Wiz 725	Wiz 726	Wiz 727	Wiz 728	Wiz 729	Wiz 730	Wiz 731	Wiz 732	Wiz 733	Wiz 734	Wiz 735	Wiz 736	Wiz 737	Wiz 738	Wiz 739	Wiz 740	Wiz 741	Wiz 742	Wiz 743	Wiz 744	Wiz 745	Wiz 746	Wiz 747	Wiz 748	Wiz 749	Wiz 750	Wiz 751	Wiz 752	Wiz 753	Wiz 754	Wiz 755	Wiz 756	Wiz 757	Wiz 758	Wiz 759	Wiz 760	Wiz 761	Wiz 762	Wiz 763	Wiz 764	Wiz 765	Wiz 766	Wiz 767	Wiz 768	Wiz 769	Wiz 770	Wiz 771	Wiz 772	Wiz 773	Wiz 774	Wiz 775	Wiz 776	Wiz 777	Wiz 778	Wiz 779	Wiz 780	Wiz 781	Wiz 782	Wiz 783	Wiz 784	Wiz 785	Wiz 786	Wiz 787	Wiz 788	Wiz 789	Wiz 790	Wiz 791	Wiz 792	Wiz 793	Wiz 794	Wiz 795	Wiz 796	Wiz 797	Wiz 798	Wiz 799	Wiz 800	Wiz 801	Wiz 802	Wiz 803	Wiz 804	Wiz 805	Wiz 806	Wiz 807	Wiz 808	Wiz 809	Wiz 810	Wiz 811	Wiz 812	Wiz 813	Wiz 814	Wiz 815	Wiz 816	Wiz 817	Wiz 818	Wiz 819	Wiz 820	Wiz 821	Wiz 822	Wiz 823	Wiz 824	Wiz 825	Wiz 826	Wiz 827	Wiz 828	Wiz 829	Wiz 830	Wiz 831	Wiz 832	Wiz 833	Wiz 834	Wiz 835	Wiz 836	Wiz 837	Wiz 838	Wiz 839	Wiz 840	Wiz 841	Wiz 842	Wiz 843	Wiz 844	Wiz 845	Wiz 846	Wiz 847	Wiz 848	Wiz 849	Wiz 850	Wiz 851	Wiz 852	Wiz 853	Wiz 854	Wiz 855	Wiz 856	Wiz 857	Wiz 858	Wiz 859	Wiz 860	Wiz 861	Wiz 862	Wiz 863	Wiz 864	Wiz 865	Wiz 866	Wiz 867	Wiz 868	Wiz 869	Wiz 870	Wiz 871	Wiz 872	Wiz 873	Wiz 874	Wiz 875	Wiz 876	Wiz 877	Wiz 878	Wiz 879	Wiz 880	Wiz 881	Wiz 882	Wiz 883	Wiz 884	Wiz 885	Wiz 886	Wiz 887	Wiz 888	Wiz 889	Wiz 890	Wiz 891	Wiz 892	Wiz 893	Wiz 894	Wiz 895	Wiz 896	Wiz 897	Wiz 898	Wiz 899	Wiz 900	Wiz 901	Wiz 902	Wiz 903	Wiz 904	Wiz 905	Wiz 906	Wiz 907	Wiz 908	Wiz 909	Wiz 910	Wiz 911	Wiz 912	Wiz 913	Wiz 914	Wiz 915	Wiz 916	Wiz 917	Wiz 918	Wiz 919	Wiz 92

which no unit may enter. Return your joystick to port 1.

a. EDGING THE MAP AREA: You will see a red blinking cursor and series of icons. Below these or the bottom of the screen, the icons are identified. Pull back on the joystick until a brown square appears above the words CLEAR-BORDER. Push the joystick to the right until the red icon cursor is around the brown square (the border icon), then press the button. A white cursor will appear on the map window.

Use the joystick to move the white cursor to the lower right hand corner of the map. Be careful when moving the cursor off the top or bottom of the screen near either EXIT. If your cursor accidentally leaves the map window, you once again must locate the brown square below the map window and press the fire button when the red cursor is on it. The white cursor will appear in the map window as before.

When your cursor is in the lower right hand corner, it will be above a brown border icon. Move the cursor sixteen spaces to the left and press the fire button. A brown border icon will appear; there should be 15 green spaces between this border block and the right hand map edge. To quickly create the left edge of your map area, hold the fire button down and push forward on the joystick. This will stack 16 of these brown border blocks vertically. Then hold the button down and push the joystick to the right. The top edge of your map will be quickly drawn in. You may thicken the borders as you desire. We recommend a double row of border icons to very clearly delimit the map area. After you complete the border, move the cursor near either EXIT, and it will disappear from the map window.

If you place an icon (such as the border icon) incorrectly, you can erase it easily. Exit the window, pick up a clear green square with the cursor, place the green square over the incorrectly placed icon, and press the button.

With the border complete, you will be ready to place the terrain on the map. Have your sketchmap ready (See Figure 2.A). This tutorial recommends a particular order of placement. For later scenarios, you may develop your own priorities.

b. ROADS (Figure 2.B): Roads (light brown in color) will be placed first. They make useful landmarks by which to gauge the placement of other terrain. Pull back on the joystick until the road icons appear below the map window. Place the icon cursor around the first vertical road icon (the third from the left). Press the fire button; the white

cursor will appear in the map window.

Move the white cursor to the position of the first vertical road segment on your sketch map; press the button. Move the cursor to the location of each of the other vertical road stretches, and press the button of each one. You may wish to use the ninth road icon to add variation to your vertical roads. The two vertical road icons are interchangeable.

The road icons represent the following road positions:

1. Horizontal
2. Horizontal
3. Vertical
4. Crossroad
5. Top-to-right
6. Top-to-left
7. Bottom-to-left
8. Bottom-to-right
9. Vertical
10. Horizontal

Continue selecting and placing road icons to complete the road.

Note that a road may make only ninety degree bends. You must use a series of bends to simulate diagonal roads.

c. RIVERS: Cycle through the icon sets until you find the river icons (blue in color). There are ten available:

1. Upper bank
2. Upper bank
3. Lower bank
4. Upper left bank for bend
5. Lower left bank for bend
6. Upper right bank for bend
7. Lower right bank for bend
8. Right bank
9. Left bank
10. Full river

Select the full river icon and draw the river in the map window (as in figure 2.C). Exit the window. Select the bank icons as required to enclose each river icon (as in Figure 2.D). The multiple upper bank may be used to add variety. You must decide which icon to place of the spot where the road crosses the river. There are two bridge icons (vertical and horizontal) and two interchangeable brown bridge icons. Substitute a brown bridge for the vertical road icon which previously spanned the river (as in Figure 2.E). Use the brown bridge icon on the right

d. HILLTOPS: There is only one hilltop icon (brown within black) which may be used to represent either a single knoll or the slope of the edge of a large hill. Both uses appear in our tutorial game. Place the hilltop icons as indicated in Figure 2.F.

e. CRESTS: Crest icons (black) are used to represent rises of less significance than hills. There are two icons provided. The first icon best suits representing singular features, such as embankments. It also can be used to cover a large area of rough ground. The second icon better suits representation of continuous crest lines; it is used for the purpose in our tutorial game. Place the second crest icon as indicated in Figure 2.G.

f. BUILDINGS: There are several building icons (a combination of brown, blue, and black). With the exception of the last icon, all may be used interchangeably. The last icon is an objective icon. It will be explained later in this tutorial. Place the building icons as indicated in Figure 2.H.

g. WOODS CENTER AND AUTO-EDGING FEATURE: There are two woods center icons (black).

To use the "auto-edging" feature, select the left (darker) woods center icon and place it in the map window, as shown in Figure 2.I. Then exit the map window. Press SELECT and off woods will be edged for you (as shown in Figure 2.J).

Note that no woods center were placed vertically or horizontally adjacent to existing terrain features so that no terrain would be destroyed by the auto-edge. The auto-edge places an appropriate woods edge icon on all non-woods spaced adjacent to wood center and also replaced some of the dark woods centers with light woods for diversity.

Individual woods edge icons and trees may also be added for variety, as shown in Figures 2.K and 2.L.

h. MINES: Mine icons (brown and black) may represent traps as well as mines.

The first mine icon (solid black) represents hidden mines; it should be used in clear terrain only.

The second mine icon represents visible mines or traps.

The third mine icon is used to place hidden mines in vertical road segments.

Place the first and third icons to represent traps, as shown in Figure 2.M.

i. OBJECTIVES: A player receives one point of the end of each turn in which one of his units occupies an objective.

In our fantasy game, the objective represents Syvon's lab. Place it as shown in Figure 2.N.

j. EXITING THE DRAW MAP ROUTINES: Press OPTION to return to the main menu.

### 3. Editing Friendly Units

Use the joystick to move the highlight to option four and press the fire button. Note the difference between the screen display and that used in setting friendly units. The TRANSPORT and DIG IN flags are gone. A new category, AGGRESSION, has been added.

A unit's aggression level determines its actions in a solitaire game in which the enemy units are controlled by the computer. In two-player scenarios, you do not need to set the aggression level. However, since you might want to play the scenario when no opponent is available, you probably should set the aggression level in each

your unit design chart (Figure 1.C). The adventures are the friendly units, and their minions are the enemy units.

Note that the on-screen menu is very similar to the menu used in designing the unit chart. The active line of the menu is marked with angular brackets. Push the joystick forward or pull it backward to move the brackets. Push the joystick left or right to change the values listed in the right-hand column.

As you begin, the brackets should be on the line labeled UNIT NUMBER. Friendly unit number 1 is Syvon. Pull the joystick slightly to move the brackets down one line to FIREPOWER. Push the joystick left or right until the value to the right of FIREPOWER reads 64 (Syvon's firepower).

Push the joystick back again to move the cursor down to DEFENSE. Set Syvon's defense to 8, the number on your chart. Continue setting values for Syvon until you reach the line labelled TURN OF ENTRY.

TURN OF ENTRY is used to bring reinforcements into the game of predetermined points. Since there are no reinforcements in our game, the TURN OF ENTRY for all units should be set to 1.

After setting Syvon's TURN OF ENTRY, move the brackets down to the line labelled CHOOSE ICON. (The DUPLICATE line is explained in the next section.) At the bottom center of the screen, you will see a single small icon which will represent the unit during play. This icon can be changed by pushing the joystick left or right. We recommend that friendly units be assigned icons with white backgrounds, and enemy units be assigned icons with dark backgrounds. Choose an icon to represent Syvon.

Move the brackets back up to the line labelled UNIT NUMBER. Push the joystick to the right to change to unit number 2, Shorty. Set Shorty's attributes, and proceed to assigning the attributes for each of the friendly units.

### 4. Edit Enemy Units

Use the joystick to move the highlight to option four, press the fire button. Note the difference between the screen display and that used in setting friendly units. The TRANSPORT and DIG IN flags are gone. A new category, AGGRESSION, has been added.

A unit's aggression level determines its actions in a solitaire game in which the enemy units are controlled by the computer. In two-player scenarios, you do not need to set the aggression level. However, since you might want to play the scenario when no opponent is available, you probably should set the aggression level in each

scenario that you design. Use only two of the seven aggression settings, setting 0 (stand fast) and setting 6 (charge any opposing unit on sight). You will find an explanation of aggression levels in Section IV.5 of this rulebook.

Set all values for enemy units 1 and 2. Note that units 3 and 4 are identical to unit 2. The available DUPLICATE feature makes duplicating units quick and easy. Continue designing the enemy units until all thirteen are completed. Then press the <OPTION> key to return to the main menu.

DUPLICATE To duplicate unit 2, set the UNIT NUMBER to 3 (the number of the new unit to be created). Move the brackets down to the DUPLICATE line, press the button. A number will appear on the right. Use the joystick to adjust this number to 2 (the number of the unit to be used as a pattern for the new unit). Press the button again and unit 3 will become an exact duplicate of unit 2. Repeat the procedure to make unit 4 another exact duplicate.

#### 5. Deploying Units on the Map

Deploying units on the map is a simple process. There is one important restriction: no two units may be deployed in the same square.

Before deploying the units you have made, you must clear the units contained in the Editor. To do this, put your joystick in port 2 and press the fire button. When the Editor's units have disappeared, return the joystick to port 1.

Refer to Figure 2.O and Figure 2.P for reference. Each number on the map represents a unit. Numbers representing friendly units (adventurer?) are underlined.

You will see a row of icons at the bottom of the screen. Push or pull the joystick to cycle through these icons. Push the joystick left to right to select individual icons.

Place the icon cursor around the icon of friendly unit 1, press the fire button. A white cursor will appear in the main map window. Place the white cursor around the space in which you wish to deploy friendly unit 1; press the button.

The unit will be deployed on the map, and the white cursor will disappear from the main map window. The icon below the map (and the icon on the map) will be tinted in blue to inform you that the unit has been deployed.

The following three pages contain Figures 2.A through 2.P; these figures illustrate the step-by-step process of drawing the map on the screen.

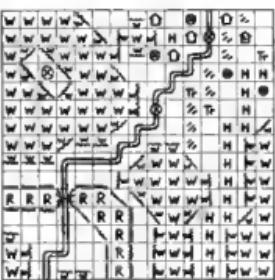


Figure 2.O

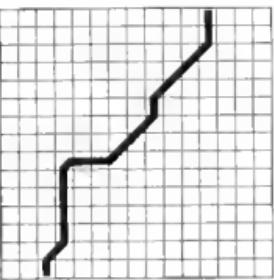


Figure 2.B

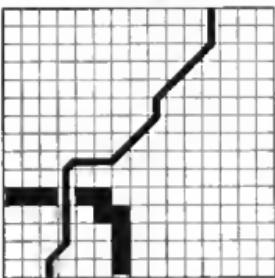


Figure 2.C

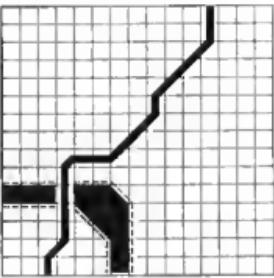


Figure 2.D

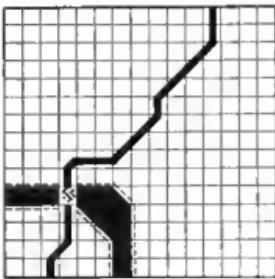


Figure 2.E

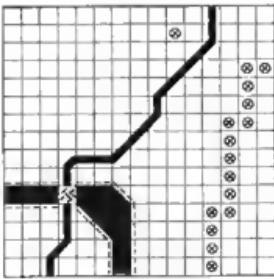


Figure 2.F

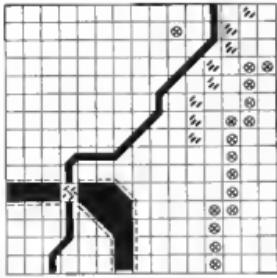


Figure 2.G

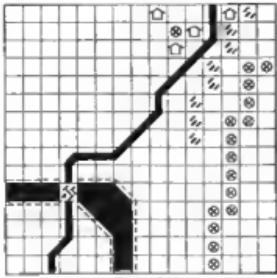


Figure 2.H

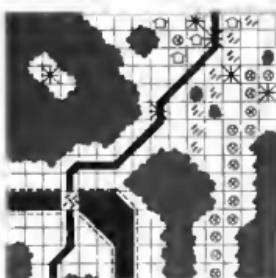


Figure 2.M

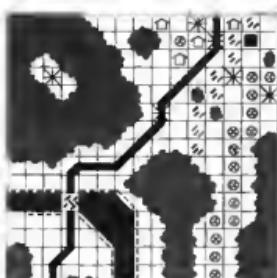


Figure 2.N

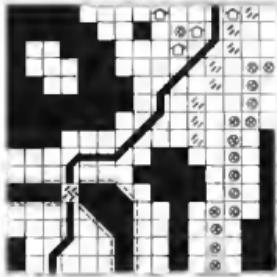


Figure 2.I



Figure 2.J

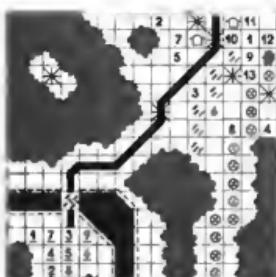


Figure 2.O



Figure 2.P

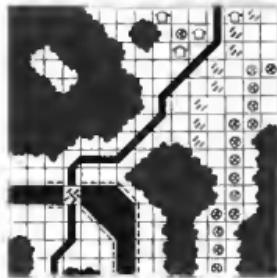


Figure 2.K

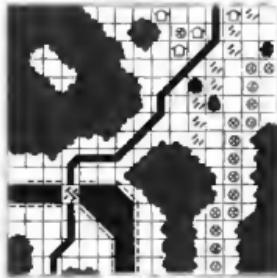


Figure 2.L

## VI. SCENARIOS

There are five one-player and three two-player scenarios. A scenario, though, is not exclusively one- or two-player; it can be played either way. However, each scenario is intended specifically for one or two players. Thus a one-player scenario accounts for the intelligence limitations of the computer. If played as a two-player game, the friendly player is at a disadvantage. The intelligence of his opponent's is (usually) drastically greater than that of the computer. This must be considered when creating a situation which can be played with one or two players. Note also that the movement rates of the enemy units differ in the two versions. In the one-player version, the movement rates are the number of squares the unit will move, and in the two-player version it is the number of Movement Points the unit has.

In the two-player scenarios, both sides are capable of achieving a victory. Due to the flexibility of this package specific victory levels are left to the players. Basically, if you feel you have beaten your opponent, you probably have.

### SIDE 1 OF SCENARIO DISK

#### 1. Rommel's 88's (WWII)

**FIVE DIVISIONS:** That's what Rommel wrote on his map over the French town of Amas. So impressed was he at the initial ferocity of the British/French attack that he wrote "Five divisions" right on the map for historians to ponder, perhaps forever. What actually attacked was an order of magnitude lower, approximately 4 battalions. Yet it is interesting to imagine Rommel, possibly in some darkened hut with only a lamp for light, scratching those words on that map, while outside things seemed to be coming undone in unexpected fury.

This one gets not fast. You have two victorious columns busily with their drive to the coast in June of 1940. The British have launched a desperate counterattack of approximately 4 battalions of armor and infantry. Many of the British tanks were Matildas and had such heavy armor that standard German anti-tank weaponry of the day was ineffective. Only a lucky shot could stop one. When this ineffectiveness became apparent, Rommel had to call in the 88MM anti-aircraft guns from the tall of the column.

**Designer:** Roger Damon

**Number of Players:** Rommel's 88's is intended for 1 player

**Map:** The map represents an area around two villages in France

**Scale:** The scale of the map is approximately 25 meters per square. Units represent squads for infantry and individual tanks, guns, and MG's with crews.

#### Units:

Friendly Forces
1-5 . . . regular infantry
6-9, 12, 13 . . . are not used
10-11 . . . medium machine gun (30 cal)
13-14, 23 . . . 37MM anti-tank gun
15-16 . . . Panzer III tanks
17-19 . . . Czech 38T tanks
20-21 . . . Panzer II tanks
22 . . . 47MM anti-tank gun
24-29 . . . trucks
30-31 . . . 88MM anti-aircraft guns

Enemy forces are a mix of infantry, machine guns, heavy Matilda tanks and infantry tanks.

**Objective:** Stop the enemy counterattack by eliminating all enemy units.

**Game Length:** 6 turns is excellent, 7 good, and 8 or more, fairly poor.

#### 2. To Cross a River

River crossings are among the most risky of standard military operations. They involve a large number of forces and often result in a large number of casualties. In the scenario, the setting is more modern with the inclusion of the helicopters. This presents some keen problems for the defender, as the transport capability and the movement range of the helicopters are unaffected by the river.

**Designer:** Roger Damon

**Number of Players:** This scenario is intended for 2 players.

**Map:** The map represents a section of river near a town with one bridge crossing. The bridge has been partially demolished. No units may cross it until it is repaired by the Engineers.

**Scale:** The scale is approximately 50 meters per square with units representing Infantry platoons and tank companies.

#### Units:

Friendly (player 1)
1-12 . . . Regular Infantry
13-17 . . . Tank Platoons
18, 22 . . . Engineer Teams
19-21 . . . Transport Helicopters
23-28 . . . Boats
29-31 . . . Motorized Reid Artillery

Enemy (player 2)
1-12 . . . Regular Infantry
13-20 . . . Anti-Tank Guns
21-22 . . . Field Artillery
23-24 . . . Mobile Anti-Aircraft Units
25-30 . . . Tank Platoons
31 . . . is not used

**Objective:** Player 1 is to cross the river in force and rebuild the bridge with his Engineers so the armor can get across the river. Player 1 is to establish a bridgehead by eliminating all enemy units in the buildings of the town across the river.

**Game Length:** No Player 2 units in the town at the end of 10 turns is a Player 1 Victory. None at the end of 12 turns is a draw. Anything else is a Player 2 Victory.

#### 3. Abuse on the Meuse

This is the Battle of the Bulge. Player 1 is the German player and Player 2 is the American/British. It demonstrates the strategic level of the Construction Set. Unit ranges for fire are only 1 square; this makes the Assault the primary force for taking ground.

**Designer:** Roger Damon

**Number of Players:** The game is intended for 2 players.

**Map:** The map represents an area of Germany/Belgium/Luxembourg/France around which the Battle of the Bulge was fought. The German border is at the bottom and the Meuse River runs from the upper right area to the upper left.

**Scale:** Each unit is a division and a square represents an area of roughly 5 miles.

#### Units:

Friendly (Player 1 - German)
1-8 . . . Armored Divisions
9-10 . . . Lufwaffe Infantry
11-26 . . . Infantry Divisions
27-28 . . . Panzer Grenadier Divisions
29-30 . . . Armored Regiments
31 . . . Corps Artillery

Enemy (Player 2 - American)
1-8 . . . Armored Divisions
9-10 . . . Airborne Divisions
11-26 . . . Infantry Divisions
27-28 . . . British Armored Divisions
29-30 . . . British Infantry Divisions
31 . . . Corps Artillery

**Objective:** The German player (Player 1) has the initiative and is to push relentlessly towards and across the Meuse River and get as many units on the victory squares as possible by game's end. Player 1 should have a +10 point advantage by game's end to win decisively. Player 2 wins decisively if he prevents the German Player from crossing the Meuse with more than 2 units. Any other result is a draw.

**Game Length:** The game should end after 7 turns.

#### 4. Return to Beta 4

Beta 4 is an asteroid rich in nickel. So rich that the original owners were invaded by a

rival mining faction and ousted from their hold. On conquering the Asteroid, defenses were set up for the inevitable return of the original owners. Outraged at the refusal of the Federation to intervene in this form of theft, the Space Mine Corporation scoured the system for the best mercenaries and the best offensive weaponry and moved to take back the asteroid. You command these forces.

**Designer:** Roger Damon

**Number of Players:** This is intended as a 1-player game.

**Map:** The map is a section of the asteroid around the main mine portal. It is crossed with deep crevasses which only your propelled Infantry and hovercraft can cross.

**Scale:** Each unit represents one team of 5 men, or one vehicle. Each square is approximately 100 meters.

#### Units:

Friendly Units
1-16 . . . Storm Troopers
17-26 . . . Assault Hovercraft

27-31 . . . are not used

**Objective:** At all costs, you are to wipe out the 4 enemy missile launchers at the top of the map near the mine portal. This will weaken the enemy sufficiently so that the asteroid may be later retaken.

**Game Length:** You have 8 turns to accomplish your mission.

### SIDE 2 OF SCENARIO DISK

#### 1. Delta Force Rescue

International terrorists have kidnapped three top NATO officials: General J.J. Jackson, his aide W.H. Smith, and Special Envoy K.P. Cooper. The terrorist's demands cannot be met. The situation is rapidly decaying. Delta Force, an elite counterterrorist unit, has been called in to rescue the hostages before time runs out.

The scenario starts with Delta Force having landed at an abandoned airstrip south of the terrorist camp.

**Designer:** Arlon Harts

**Number of Players:** This is intended as a 1-player scenario.

**Map:** The map represents the area around the main terrorist compounds. In the lower right across the river is the first terrorist camp in which one of the hostages is being held. In the top right corner is the main camp in which the other two hostages are being held.

**Scale:** Each unit represents one vehicle, one team, or individual men.

**Units:****Friendly Units:**

- 1 . . . Delta Force Commander
- 2 . . . Fast Attack Patrol Craft
- 3 . . . Delta Force Team Alpha
- 4 . . . Delta Force Team Beta
- 5 . . . Delta Force Team Charlie
- 6 . . . Apache Helicopter
- 7-8 . . . Black Hawk Helicopters
- 9 . . . J.J. Jackson
- 10 . . . W.H. Smith
- 11 . . . K.P. Cooper
- 12 . . . Support Aircraft
- 13-15 . . . NMC-40 Warior Dune Buggy
- 16 . . . Hummer Jeep
- 17-31 . . . are not used

You will be facing a mixture of terrorist guards, patrols, and some SA-8 SAM launchers.

**Objective:** You are to rescue the one hostage in the lower camp and the two in the upper. They will appear as the game progresses. They should be loaded aboard some type of transport and returned to the airfield from which you will start. Getting three hostages onto the victory squares by the end of 16 turns is a decisive victory. Less than three by turn 14 is a major victory. Anything past turn 16 is meaningless as the rescue transport will have already left. On turn 10, you will receive some helicopter support.

**Game Length:** 16 turns

**2. Fulda Gap**

World War II has begun. Your position is in the Fulda Gap region of West Germany. You have received a message from your forward observers that a large Soviet tank force is on the way. To make matters worse, there have been scattered reports of airborne units landing in the area.

**Designer:** Arlon Harts

**Number of Players:** This scenario is intended for 1 player

**Map:** The map represents an area in West Germany near the border of East Germany. Your forward helicopter base is at the bottom of the map. Near the center of the map is a small village garrisoned by West German forces with Leopard tanks. Scattered across the top of the map are 3 British Sheridan tanks acting as forward observers.

**Scale:** Vehicles are individual tanks, transports, and helicopters. Other units are MG teams and TOW missile teams. Each square is approximately 50 meters across.

**Units:****Friendly Units:**

- 4, 5 . . . Apache Helicopters
  - 6-9 . . . Huey 500 Helicopters
  - 10-12 . . . Huey Cobra Helicopters
  - 13-15 . . . M551 Sheridan Tanks
  - 16-19 . . . American M-1 Abrams Tanks
  - 20-23 . . . West German Leopard II Tanks
  - 24-25 . . . Marauders
  - 26-27 . . . U.S. Ranger MG Teams
  - 28-30 . . . U.S. Ranger TOW Teams
  - 31 . . . Ranger Commander
  - 1-3, 23 . . . are not used
- You will be facing Soviet T-80's, T-72's, T-55's, BMP-1 transports, and some airborne troops.

**Objective:** Basically, you are to stop the Soviet advance. If any Soviet tank crosses the river or the bottom of the map, you have lost. If you have units in the village at the center of the map and there are no Soviet units in the village or advanced beyond it, you have won.

**Game Length:** 10 turns

**3. First Bull Run**

In the first major engagement of the American Civil War, Union troops attempted to flank the Confederate line. It was in the battle that the firm stance of Thomas Jackson's troops earned him the nickname "Stonewall."

**Designer:** Jeffrey A. Johnson

**Number of Players:** Bull Run is designed as a two-player scenario.

**Map:** The map covers the main battle area west of Bull Run, from Sudley Springs in the north to New Market.

**Scale:** Each unit represents one half of a brigade or a loose collection of batteries or cavalry companies.

**Units:****Friendly Units:**

- Army of the Potomac (Beauregard)
- 1, 2 . . . 1st Brigade (Bonham/Keneshaw)
- 3, 4 . . . 3rd Brigade (Jones)
- 5, 6 . . . 4th Brigade (Longstreet)
- 7, 8 . . . 5th Brigade (Cooke/Evans)
- 9, 10 . . . 6th Brigade (Early)
- 11 . . . Cavalry
- 12, 13 . . . Artillery

- Army of the Shenandoah (Johnston)
- 14, 15 . . . 1st Brigade (Jackson)
- 16, 17 . . . 2nd Brigade (Barton)
- 18, 19 . . . 3rd Brigade (Bee)
- 20, 21 . . . 4th Brigade (Smith)
- 22, 23 . . . Artillery
- 24-31 . . . are not used

**Enemy Units:**

- Army of Virginia (McDowell)
- 1-6 . . . 1st Division Infantry (Tylee)
- 7, 8 . . . 1st Division Artillery
- 9-12 . . . 2nd Division Infantry (Hunter)
- 13 . . . 2nd Division Cavalry
- 14, 15 . . . 2nd Division Artillery
- 16-21 . . . 3rd Division Infantry (Holtzman)
- 22, 23 . . . 3rd Division Artillery
- 24-27 . . . 5th Division Infantry (Miles)
- 28-31 . . . are not used

**Objective:** As of Bull Run, the objective of both commanders is destruction of the opposing army.

**Game Length:** Ten turns or until one player conceded.

**4. Castle Siege**

The scenario is a fictional siege of a castle in the late 12th century. The castle is defended by eleven towers with catapults as well as a small number of men-at-arms and archers. There are also 5 gates which the attackers must smash to gain entrance to the keep.

**Designer:** Robert W. Collier

**Number of Players:** This scenario is designed for 1 player.

**Map:** The map represents a medieval castle and the area immediately surrounding it.

**Scale:** Each unit represents one siege engine or a small group of men. Each square is about 15 meters across.

**Units:****Friendly Units:**

- 1-10 . . . Archers
- 11-18 . . . Men-at-Arms
- 19-23 . . . Mantlets (Movable walls with arrow slits)
- 24-26 . . . Siege Towers
- 26-29 . . . Catapults
- 30-31 . . . Trebuchets (Huge catapults capable of hurling 500-lb. stones 300 meters)

**Enemy units:** consist of siege towers with catapults, 5 gates men-at-arms, and archers

**Objective:** Take the castle. Hold it against the relieving forces that may arrive at any time. Extra points are awarded for occupying keep.

**Game Length:** 16 turns

**VII. DESIGN GUIDELINES,  
HINTS & COMMENTS****In General**

Imagination is the key to fully exploiting the features of the WARGAME CONSTRUCTION

SET. To help stir your imagination, I offer the following guidelines on how to use various aspects of the package.

Wargame design has a unique characteristic: The playfield and the parameters are already there, although still to be deciphered. The overall situation is highly visible, but it needs to be understood and interpreted by the designer. Unlike the designer of an adventure game, which requires an excellent story line, or an arcade game, which requires a challenging situation, the designer of a wargame begins with a large part of the work already done. Since so many of the parameters are set by history, the prime area of the designer's effort is in the organization and execution of those parameters. The numbers are all there; how they interrelate is for the designer to determine.

Despite all the givens, wargame design is formidable. Wargames reflect the real world, and the real world is incredibly complex. Insignificant details cluster with others to create a major turning point. Other details that appear major can vaporize in the face of history.

The central concept of this construction set is to first define the variables and then make them as easy to manipulate as possible. The designer's focus can turn then to wrenching a game out of the available data. The key is understanding the construction set's ability to manipulate the data; helping you to obtain that understanding is the purpose of this guide.

Don't worry if things aren't perfectly worked out when you start playing a design. A good overall plan is to assemble the situation to a point where you think it effectively represents what you want. Then play it through a few turns, taking note of discrepancies. You will see where the problems are. As in a good play in football, you will need a clear understanding of the result you want your scenario to achieve. Adjust your variables to approach the desired result.

Keep in mind that there is no one aspect of the construction set which ensures a good game. The three prime ingredients are the units, the deployment of the units, and the map. The proper use of these ingredients coupled with a central idea (e.g., crossing a river under fire defeating a superior force in a flanking maneuver) almost always will result in your creating a good game.

**The Units**

Deciding what type of units to generate in what quantities can be a major stumbling block for the beginner. For the first few times, it may help you to use the values from one of the included scenarios centered around

the same scale and time period you want to represent. Just remember that a unit doesn't mean anything if it is alone on a blank map. While the terrain is important, more so are the opposing units. In creating a friendly infantry unit, you are, in effect, creating an enemy infantry unit. If may not be an identical unit, but the parameter ranges should be close and the values between the two sides properly coordinated for the desired results.

Initially, decide on the basic layout of the forces and make notes so that editing will go quickly and smoothly. Your notes, once organized, will also help you decide where to deploy the units. Don't hesitate to use the duplicate function in the manner described in the instructions to make similar units.

Pre-planning the basic parameters of the units is vital. This is especially so if you are working on a scale where the pieces represent individual units. To get the effect of individual units, you need clear unit differentiation.

This is evident in the Rommel's 88's scenario. I wanted German tanks to withdraw under the fire of the British tanks and British tanks to hold up against repeated hits by German tanks and anti-tank guns. A clean differentiation and relationship between the forces was important since the major units, the tanks and anti-tank guns, were individual units. This affected the result I wanted, which was for the British armor to have the initial impact followed by the greater impact of the German 88's.

But situations are not always so clear but such was the case in the river crossing scenario. I had no historical prerequisite in mind, though there are many available. My intentions were simply to represent a force attempting a river crossing. Nevertheless, the friendly units had to interact with the enemy units.

The following guidelines on specific aspects of unit construction should also be kept in mind:

#### Firepower/Defense

These two values work together, though from opposite sides of the coin (that is friendly firepower relates to enemy defense and vice versa). Firepower of A minus Defense of B equals Damage. New Strength of B equals Old Strength of B minus Damage. Strength of a unit works roughly, in "chunks" at 32, and is explained below.

The process of hitting a unit is not in your direct control. It is a function of the range to the target and the cover the target occupies plus the decrease in accuracy of a firing unit that has moved. Cover affects the

chance of hitting the target, but, once hit, these factors come into play.

Thus, increasing or decreasing a unit's firepower or defense by 1 has little effect. The key is the way they work together.

#### Assault

Assault values are more involved in their game interaction. If unit A has an Assault value of 6 and Unit B has an Assault value of 6, then, all else being equal, there is a 50-50 chance of either of them winning an assault. Factors which vary these odds are: the firepower of the units (the greater the firepower of one unit, the better it will do); the strength of the units (the unit with the greater strength will do better); and the terrain occupied by the assaulted unit (the heavier the terrain, the harder it is to pry the unit from it). However, the assault values play the most important role and affect the outcome the most. Thus a unit with an assault value of 14 will almost always win over a unit with a 1 or 0, regardless of strength, firepower, and terrain.

Unlike Firepower/Defense, differences of 1 can create fairly significant effects in the game.

Using Assault values wisely can create some very unique effects. Elite, understrength units can be very steadfast in holding their position. Assaults also work very well in "zone of control" type games where ranges are set to 0 and assaults are the only mode of combat. This gives a much larger feel to the scale of the simulation while still remaining in the framework of the system.

#### Movement

Movement values are based on Movement Points. Units expend movement points as they move. The number of movement points expended is dependent on the unit type and the terrain the unit is attempting to enter. Denser terrain requires a higher expenditure of movement points. Helicopter units expend only one movement point for each square entered. Boats expend one movement point for each water square entered. Boats cannot move on land.

All other units expend 1 point for roads, 2 points for clear, 3 points for light terrain, 6 points for woods and hilltops, and 8 points for river/water and city/buildings.

Some thought must be given to timing in deciding how many movement points to give a unit. Assume, for example, that there is a river 10 squares wide which infantry must cross in boats. If the boats have 10 movement points, the infantry will get across without undergoing very much enemy fire. This oftentimes eliminates the river as a defensive barrier if, however, the boats have 4 move-

ment points, the units will undergo two turns of fire from the opposite shore before landing.

Thus the number of movement points given a unit depends on the map and how much that unit is to accomplish. In a situation where units seem to be getting too much accomplished at too little a price, often teasing the movement points can remedy the problem.

#### Strength

Every point of strength a unit has is equivalent to 32 damage points. For every 32 damage points a unit undergoes, its strength is reduced by one. Thus a unit with a defense of 1 and a strength of 0 will be eliminated by a unit with a firepower of 33.

The value can be treated in a more relative way, however. Think of it as the staying power of the unit. The lower the strength, the greater the chance of the unit withdrawing away under fire. Units can recover lost strength by remaining "out of action."

Units with very low strength but high firepower, defense, and assault values can be brought to bear against a force superior in strength but with much less punch to create some exciting play. Such a situation requires some delicate fine tuning, but the possibility is there for some quick, hot action.

#### Range

The value, more than any other, determines the scale of the game. The maximum range for units needing a line of sight is 20 squares. Marker unit types have a range of about a screen and a half vertically, and are not affected by sighting restrictions. Gun unit types may shoot off over the map with no sighting restrictions.

Generally for tactical scales, the highest range should be 20. For operational levels, 10 to 12 is long. For operational/strategic, 4 or 5 should be the maximum range. At the strategic level, only artillery units should have any range over 1.

#### Transport

Only three unit types can transport other units: TR (truck), HL (Helicopter), and BT (Boat). These types are different from each other. Trucks are limited to ground movement and their movement is affected by terrain. Helicopters expend one movement point per square regardless of the terrain type. Boats are only permitted to move on water or bridges. They expend one movement point for each of these terrain types.

Do not let the labels limit you. A truck type may have firepower, armor, and a good main gun. The icon chosen may be tank-shaped. The end result would be a tank that can transport infantry.

Helicopter types can also have as wide a range of capabilities as any other type. Create a glider or transport type unit that brings troops into the main battle area. Give them firepower and make gunships.

Boats need not be limited to hauling units across the water. They can have firepower, armor, and a GN (Gun) weapons type to enable them to blast away at anything on the map. With the proper scale, they can then act like gun boats or even destroyers.

Stretching things further, boats can even be made into fortresses. Give them a high enough defense so they cannot be eliminated by fire and a high enough assault rating that other units cannot assault them effectively. Then, Infantry can hide inside these "boats" and recover from damage out of harm's way.

An interesting variance is the enemy Special (SP) unit type. Such a unit has standard capabilities given normally. But as a Special unit, it becomes a helicopter's nightmare. If it merely hits a helicopter, that helicopter is gone. It was included to keep helicopters from running amok. It has a bonus feature. It cannot be pinned or suppressed. These units must be knocked out before helicopters can roam freely.

#### Putting It All Together

Four critical factors define the interactions between the friendly and enemy units. These are Firepower, Defense, Assault, and Strength. Armor and Anti-Armor capabilities also create interactions, but more clearly than the other factors.

After you have set up some initial values, compare what happens with what you wish to achieve. If certain units are disappearing too fast, you can increase their Strength or Defense. This is preferred to reducing the Firepower of all the opposing units. Yet sometimes, a global reduction of factors better approaches the result you want. Consider too how long a unit is around. Unless you're working a modern scenario with tactical nuclear weapons, division should not disappear with one hit. Strength is the major factor in how long a unit survives. Firepower and defense affect how much a unit is hurt, but, within the constraints of the system, a unit cannot lose more than two Strength points with a normal hit.

Or set the strength of a unit at 1 and adjust its firepower and defense so that only a few points are knocked off per hit. If working from this angle, keep in mind though, that if a unit's net firepower is greater than a target's actual strength, it will eliminate that target. So, keep defense around 12 and firepower around 15 or so. It will then take

approximately 23 hits to eliminate a unit (not counting terrain and recovery).

Remember that there are two ways to keep a certain unit from harming another unit. One is to make the defense of the target unit stronger than the firepower of the firing unit. The second is to make the target armored and to deny the firer armor capabilities. The latter is irrelevant, however, when the range is one square.

There is absolutely no way to insure that unit A will eliminate unit B with one shot. Giving a much greater firepower than unit B's defense helps, but terrain defense and a random "no kill" factor built into the game system precludes sure bets. This "no kill" factor occurs randomly. When it does, a unit, otherwise eliminated, gets a second chance.)

#### Map and Scale

If you are modeling a specific situation and have a good map of the area, drawing the map should not be too difficult. If you're doing a free-form map, put what you want where you want it. In a military situation the terrain is a key factor, but whatever it may be, the combatants have to work with it. You can design the terrain and make the game work better. But nature is very random and very irregular things are not put in their places with any intent. It just is. If a military force encounters a river that seems impassable, it has to deal with it. If there is no good cover in an approach to any enemy position, then the approach must be made in the open. So let your imagination roam in placing terrain with little thought as to the actual military situation. Once the map is designed, it can be surveyed and a situation can be built around it.

Determining a scale for a scenario is probably the most difficult part of the whole developmental process because various elements of a scenario interact in many ways. The scale choice in the Construction Set main menu is mainly for the map appearance and should be tied to the movement rates and ranges of the units. Do not use the strategic map scale where buildings are little dots if your infantry can shoot up to 8 squares. That would be allowing their rifles to shoot for miles.

Since true scale is dependent on weapon ranges and movement rates, I will offer my interpretation of the actual scales represented by the Scale Select option in terms of distance across each square.

TACTICAL — approximately 20 to 100 meters across.

TACTICAL/OPERATIONAL — from 100 to 500 meters across.

OPERATIONAL — from 500 meters to 1 or 2 kilometers across.

STRATEGIC — from 1 or 2 kilometers across up to 10 or even more.

Therefore you should first determine the scale for ranges and movement rates. The map scale should support this decision. I feel that the range scale is by far the most important. In designing a scenario, I decide right from the start how infantry will shoot and how far the tanks will shoot. This determines the general scale of the scenario. For instance, if I want a game with a high tactical feel, the highest ranged weapons (tanks, AT guns) will have a range of 20. Lesser weapons (MG's) will have a range of 10 to 14. Infantry will have a range less than 10 and generally around 6 or 8.

When choosing ranges, keep in mind that you do not want to represent the maximum range of a particular weapon. You should be after the effective range. Though an M-1 rifle could shoot much farther than 200 yards, hitting anything at that range can be a problem. A tank shell can travel for miles. But rarely did a tank fire at another for a range of more than 500 to 1000 yards.

Note also that there are many intangibles involved in ranged firing. Terrain is rarely flat. Rolls, rises, weeds, and brush all limit effective range. Weather also has an effect. Fog, haze, rain, and even night can come into play. So, you needn't go overboard in your calculations and be absolutely precise. Feel can be more important.

In the operational and strategic scales, ranged firing can be totally eliminated by setting ranges to 0. This drastically increases the weight put on assault values as it is the only way in which a unit can be attacked with no ranged firing.